

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)	Confirmation No.: 4907
)	
Yoichi KAKUDO et al.)	Group Art Unit: 1783
)	
Application No.: 10/582,336)	Examiner: Walter A. Moore
)	
Filed: May 25, 2007)	
For: FERMENTED MALT BEVERAGE		

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

MAIL STOP APPEAL BRIEF – PATENTS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Appellants appeal under 35 U.S.C. § 134(a) from the final rejection mailed April 15, 2010. A Notice of Appeal and fee pursuant to 37 C.F.R. § 41.20(b)(1) were timely filed on August 13, 2010. The present Appeal Brief and fee pursuant to 37 C.F.R. § 41.20(b)(2) thus are timely filed on or before October 13, 2010. If additional fees are due, please charge Deposit Account 50-0573.

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I. Real Party in Interest

Suntory Holdings Limited is the real party of interest and assignee of Application No. 10/582,336.

II. Related Appeals and Interferences

Neither Appellants, Appellants' legal representative, nor the assignee know of other prior or pending appeals, interferences, or judicial proceedings that may be related to, directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. Status of Claims

The status of the claims is as follows:

Claims canceled: Claims 2, 10, 12-13, 15, and 21-23

Claims pending: Claims 1, 3-9, 11, 14, and 16-20

Claims allowed: None

Claims rejected: Claims 1, 3-9, 11, 14, and 16-20

Claims withdrawn: None

Claims on appeal: Claims 1, 3-9, 11, 14, and 16-20

IV. Status of the Amendments

On July 16, 2010, the Examiner initialed and entered Appellants' Response Under 37 C.F.R. § 1.116, dated July 13, 2010. Appellants last amended the claims in the Amendment and Response under 37 C.F.R. § 1.111, filed February 24, 2010. All amendments have been entered into the application.

V. Summary of Claimed Subject Matter

The claims are directed to providing a malt fermented beverage that offers a refreshing finish (i.e., crisp taste) and robust feel. The beverage uses a higher proportion of malt in the starting materials. (*See, e.g.*, Sub. Spec. 2, ll. 22-25.) The malt fermented beverage is made by mixing two components, A and B, in different proportions. Component A is an alcohol-containing material partly made of wheat or barley and produced by fermentation. Component B is an alcohol-containing distillate obtained by distilling an alcohol-containing material at least partly made of wheat or barley. The claims define a ratio between an alcohol content from the alcohol-containing material of the component A and an alcohol content from the alcohol-containing distillate of the component B in a range of about 97.5:2.5 to about 90:10 (i.e., about 39:1 to about 9:1). (*See* Claim 1).

VI. Grounds for the Rejection to be Reviewed on Appeal

Appellants provide the following concise statement of each ground of rejection on appeal, pursuant to 37 C.F.R. § 41.37(c)(1)(vi).

Claims 1, 3-6, 9, and 19-20 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by:

- *CarBomb*, The Webtender, <http://www.webtender.com>, link to *Browse Drink Recipes*, link to *By Name*, follow alphabetized list to *Carbomb*, at <http://www.webtender.com/db/drink/4194> (posted February 10, 2003) ("*CarBomb*");

with additional evidence allegedly provided by:

- *Guinness*, Green's Discount Beverage Stores, <http://www.greensbeverages.com/guinness.html> (posted April 16, 2003) ("*Guinness*");
- *Jameson® Irish Whiskey*, Drinks Mixer™, <http://www.drinksmixer.com/desc1016.html> (posted Oct. 19, 2003) ("*Jameson Irish Whiskey*");
- *Guinness Stout*, Drinks Mixer™, <http://www.drinksmixer.com/desc586.html> (posted October 9, 2003) ("*Guinness Stout*"); and
- *Irish Cream*, Drinks Mixer™, <http://www.drinksmixer.com/desc54.html> (posted October 11, 2003) ("*Irish Cream*").

Claims 1, 3-6, 9, 11, 14, 16, and 19-20 stand rejected under 35 U.S.C. § 103(a) as allegedly obvious over:

- "Hoppy College: A Magazine Lecture," *Hoppy de Happy Dokuhon*, Kabushiki Kaisha Asupekuto (Aug. 22, 2000) pp. 30-35 ("*Hoppy de Happy*") in view of either
- Application No. JP 60-241883 ("*Shinozaki*") or
- *Japan –Alcoholic Beverages*, The Global Gourmet®, <http://www.globalgourmet.com/destinations/japan/alcoholic.html> (posted October 4, 2003) ("*Japan Alcoholic Beverages*");

with additional evidence allegedly provided by:

- *Japan – Taxes on Alcoholic Beverages*, World Trade Organization, WT/DS8/R, WT/DS10/R, WT/DS11/R (July 11, 1996) (“*Japan – Taxes*”).

Claims 7-8 stand rejected under 35 U.S.C. § 103(a) as allegedly obvious over *CarBomb*, as evidenced by *Guinness*, *Jameson Irish Whiskey*, *Guinness Stout*, and *Irish Cream*, as applied to claims 1, 3-6, 9, and 19-20, and further in view of U.S. Patent No. 5,618,572 (“*Tripp*”).

Claims 7-8 and 17-18 stand rejected under 35 U.S.C. § 103(a) as allegedly obvious over *Hoppy de Happy* in view of either *Shinozaki* or *Japan Alcoholic Beverages*, as evidenced by *Japan – Taxes*, as applied to claims 1, 3-6, 9, 11, 14, 16, and 19-20, and further in view of *Tripp*.

VII. Arguments

Claims 1, 3-9, and 19-20 stand or fall together. These claims are rejected under 35 U.S.C. § 102 or § 103 over *CarBomb* or the combination of *CarBomb* and *Tripp*, respectively.

Claims 1, 3-9, 11, 14, and 16-20 stand or fall together. These claims are rejected under 35 U.S.C. § 103 over *Hoppy de Happy* and either *Shinozaki* or *Japan Alcoholic Beverages* or the combination of *Hoppy de Happy*, *Tripp*, and either *Shinozaki* or *Japan Alcoholic Beverages*.

FINDINGS OF FACT

FF. 1 Table 1 of the specification (Sub. Spec. p. 13, ll. 21-22, reproduced in part below) shows how a ratio is determined between an alcohol content from a component A and an alcohol content from a component B:

Table 1

	Inventive Product				
	1	2	3	4	5
Ratio between alcohol content from A and alcohol content from B					
From A	99	97.5	95	90	80
From B	1	2.5	5	10	20

Similar, consistent language is found throughout the specification. For example, Sub. Spec. p. 12, ll. 12-20; Sub. Spec. p. 15, ll. 10-13; Sub. Spec. p. 16, l. 21 – 17, l. 1; and Sub. Spec. p. 18, ll. 9-13.

FF. 2 In claim 1, the term “**ratio**” occurs in the following context:

wherein a **ratio** between an alcohol content from the alcohol-containing material of the component A and an alcohol content from the alcohol-containing distillate of the component B is in a range of about 97.5:2.5 to about 90:10.

FF. 3 The Examiner alleges that the claim term “ratio” is subject to two equally plausible interpretations. The Examiner states:

Applicant asserts a skilled artisan would have understood that “a ratio between X and Y refers to X/Y.” As discussed above, the limitation [of] “a

ratio,” absent any other language, does not limit the claim interpretation to either X:Y or Y:X.

(Advisory Action mailed July 22, 2010, p. 3, ¶3.) The Examiner accordingly alleges the claims read on a malt fermented beverage, wherein a ratio between A and B is 90:10; *or* wherein a ratio between A and B is 10:90.

FF. 4 Noting the disputed claim interpretation, the Examiner gives his interpretation equal weight with Appellants’:

Applicant argues the claim interpretation is not consistent with Table 1 (Remarks, p. 2, last para to p.3). As discussed above, the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. The present claim language can be interpreted in at least two ways. One way is the Applicant’s interpretation. The Examiner’s interpretation is an example of another interpretation. In other words, the present claim language does not necessarily claim the embodiments listed in the Specification, Table 1.

(Advisory Action mailed July 22, 2010, p. 3, ¶4.)

FF. 5 The Examiner equates “an alcohol content from the alcohol-containing material of the component A,” for example, with “an alcohol content of the component A”:

Regarding the CarBomb reference, applicant argues the alcohol content is “from” each component, not “of” each component (p. 8, 1st paragraph). Examiner is not persuaded by this argument. Although the applicant’s interpretation is one possible interpretation, the claims do not necessarily limit the claims to the applicant’s interpretation. The claim claims “an alcohol content from” component A and “an alcohol content from” component B. The Whiskey has “an alcohol content” of 40%. The Guinness has “an alcohol content” of 4.1%. The ratio of alcohol contents is 40%:4.1%. So, a ratio between an alcohol content (4.1%) from component A (Guinness) and an alcohol content (40%) from component B (Whiskey) is 40%/4.1%.

(Final Rejection mailed April 15, 2010, p. 10, ¶4.; *see also* Advisory Action mailed July 22, 2010, p. 3, ¶2.)

FF. 6 In Example 1 of the specification, component A is a beer having malt proportion of 100% and 5% of alcohol content. Component B is mugi shochu having an alcohol content of 44.0%. The raw materials of mugi shochu are wheat or barley and water, prepared using malted wheat or barley instead of koji in fermentation, and subsequent distillation. (Sub. Spec. p. 13, ll. 6-12.)

FF. 7 In this Example, the component A and the component B were mixed in proportions, such that the ratio between an alcohol content from the alcohol-containing material of the component A and an alcohol content from the alcohol-containing distillate of the component B can be 90:10, for example. (Sub. Spec. p. 13, ll. 13-23; Table 1, product #4.)

FF. 8 The Examiner equates “an alcohol content from the alcohol-containing material of the component A,” for example, with “an alcohol content of the component A” when applying *CarBomb*:

Regarding the alcohol content, The Webtender teaches mixing 13 oz of component A (Guinness) with 1 oz of component B (Whiskey) resulting in a volume ratio of 13:1. The alcohol content of component B (Jameson's) is 40% (see Drinkmixer Jameson's) and alcohol content of component A (Guinness Stout) is 4.1% (see Drinkmixer Guinness stout) and. Therefore, a ratio of the alcohol content from the components is 9.75:1 (Whiskey:Beer = .40/.041 = 9.75:1).

(Final Rejection mailed April 15, 2010, p. 3, ¶4.)

FF. 9 The Examiner admits that *CarBomb* does not teach the malt proportion of component A. (Final Rejection mailed April 15, 2010, p. 4, ¶5.)

FF. 10 The Examiner relies upon *Tripp*, when used in combination with *CarBomb*, for the following teachings:

Tripp is drawn to preparing beer and malt beverages (Abstract). Tripp teaches changing the malt proportion of beer changes the flavor profile of the final product (col. 8, ln. 67 to col. 9, ln. 1). Tripp suggests malt proportions from 26% (21/79 malt/dextrose, col. 8, ln. 63) to 127% (56:44 malt/dextrose, col. 9, ln. 1-2). Tripp also suggests using a beer comprising between 80-100% malt (col. 4, ln. 5). Tripp teaches the flavored malt beverages minimize the consumer sensation of fullness, meaning they are drinkable and refreshing (col. 9, ln. 30-31). Furthermore,

Tripp suggests the malt base can be used as a mixture “for all manner of liquors” (col. 10, ln. 18-21).

(Final Rejection mailed April 15, 2010, p. 4-5.)

FF. 11 The Examiner equates “an alcohol content from the alcohol-containing material of the component A,” for example, with “an alcohol content of the component A” when applying *Hoppy de Happy*.

Hoppy teaches component A has an alcohol content of 0.8% (p. 4, second to last paragraph). Therefore, a ratio of the alcohol content of the components is 31.25 (Shochu:Hoppy = $31.25 = .25/.008$). In the event that the translation of Hoppy (provided on 05/25/2007) is correct and the Hoppy has a proof of 25, which is 12.5% alcohol, a ratio of alcohol content is 15.625 (Shochu:Hoppy = $31.25 = .125/.008$).

(Final Rejection mailed April 15, 2010, p. 6, ¶¶1-2.)

FF. 12 The Examiner relies upon *Shinozaki* for the following teachings:

Shinozaki teaches an otsu mugi shochu that has a having mellow and rich flavor
Shinozaki teaches the shochu is made from wheat. It would have been obvious to one of ordinary skill in the art at the time of invention to use a wheat shochu, as taught in Shinozaki, to obtain a malt beverage having otsu mugi shochu because the otsu mugi shochu has a mellow and rich flavor.

FF. 13 Alternatively, the Examiner relies upon *Japan Alcoholic Beverages* for the following teachings:

In the alternative, to Hoppy in view of Shinozaki, Hoppy teaches discloses the claimed material except for the materials used to make component B (shochu). Global Gourmet teaches shochu is made from various grains including wheat. It would have been obvious to one having ordinary skill in the art at the time the invention was made to select shochu made from wheat, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.
MPEP 2144.07.

(Final Rejection mailed April 15, 2010, p. 6-7.)

PRINCIPLES OF LAW

The PTO is not required in the course of prosecution to interpret claims in the same manner as courts are required to during infringement proceedings. *Ex parte Rodriguez*, Appeal 2008-000693, Application No. 10/132,492, at *11 (BPAI 2009) (precedential). During prosecution, the “PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant’s specification.” *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997). The question then is whether the PTO’s interpretation of the disputed claim language is “reasonable.” *Id.* at 1055; *Rodriguez*, at *11. In that regard, “it would be unreasonable for the PTO to ignore any interpretive guidance afforded by the applicant’s written description.” *Morris*, at 1055.

ARGUMENT

1. **The Examiner’s interpretation of “ratio” in the claims is unsupported, because it ignores interpretive guidance offered by the specification and is inconsistent with the plain meaning of the claims.**

The Examiner’s claim interpretation of “ratio” is unsupported. *See Morris*, at 1055. For example, where the “**ratio between alcohol content from A and an alcohol content from B**” is 90 parts from A and 10 parts from B, the specification describes the ratio as “90:10.” *See* FF. 1. Accordingly, claim 1 must refer to the following ratio, for example:

$$\frac{(\text{alcohol content from alcohol-containing material of component A})}{(\text{alcohol content from alcohol-containing distillate of component B})} = \frac{90}{10}$$

The Examiner, however, ignores this interpretive guidance. *See* FF. 3. An Examiner’s interpretation is not simply given equal weight to an Appellants’ interpretation. *See* FF. 4. Instead, an Examiner’s interpretation is considered unreasonable, if it ignores interpretative guidance provided by the specification. *See Morris*, at 1055. Accordingly, the Board should find that the Examiner’s interpretation is unsupported.

The Examiner's interpretation also is unsupported, because it is inconsistent with the plain meaning of the words in the claims. *See Morris*, at 1054. Dictionaries may be helpful to construe claim terms, even though dictionaries are less significant than the specification in determining the meaning of claim language. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005) (*en banc*); *see also Ex parte Frenk*, Appeal No. 2009-005654, Application No. 10/861,818, at*5 (BPAI June 19, 2009) (informative) (consulting a dictionary, as well as the specification, to interpret claim terms). Webster's Third New International Dictionary, P. Gove, ed., Merriam-Webster Inc., Springfield, Mass. (Copyright © 1993) defines "ratio" as follows:

stractions — compare INTELLECT **2 a** : the quotient of one quantity divided by another **b** : the fixed or approximate relation of one thing to another or between two or more things (as in number, quantity, or degree) : RATE, PROPORTION <the ~ between births and deaths> <the 10:1 student-teacher ~ of the school> <the ~ between stock prices, earnings, and dividends —Time> <combining . . . in such ~ understanding of technics

When a "ratio" means a relation "between" two or more things, Webster's states it is customary to equate that relationship with two numbers separated by a colon. It is also customary to place the two numbers in the order of the "quotient of one quantity divided by another." For example, Webster's defines a ratio of 10 students to 1 teacher as a "10:1 student-teacher ratio." The Examiner's interpretation (*see* FF. 3) thus is at odds with the common, customary meaning of "a ratio between A and B."

Accordingly, the Examiner's interpretation is unsupported and unreasonable. It ignores interpretive guidance afforded by Appellants' written description, and it is inconsistent with the plain meaning of the words in the claims.

Instead, the Examiner relies on *Van Geuns*, to allege that Appellants improperly incorporate limitations into the claims. Appellants submit that *Van Geuns* is readily distinguishable. The claim at issue in *Van Geuns* recited a "uniform magnetic field." The applicant argued that the prior art did not teach the level of field uniformity required for NMR imaging, but the claim made no mention of NMR imaging. The court held that applicants could not incorporate the level of field uniformity from the specification into the claims. *See Van Geuns*, at 1184.

By contrast, Appellants use the specification to ascertain the meaning of terms already present in the claims. Appellants do not attempt to add or subtract limitations from the claims.

The Federal Circuit expressly condones the use of the specification during prosecution to ascertain the meaning of the claims:

The pertinence of the specification to claim construction is reinforced by the manner in which a patent is issued. . . . Indeed, the rules of the PTO require that application claims must “conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.” 37 C.F.R. § 1.75(d)(1).

Phillips, at 1316-17. When the claim terms are properly read in light of the specification, as required, the Examiner’s interpretation is unsupported and unreasonable.

Accordingly, claim 1 reads on a malt fermented beverage, wherein a ratio between an alcohol content from the alcohol-containing material of the component A and an alcohol content from the alcohol-containing distillate of the component B is in a range of about 97.5:2.5 to about 90:10. The claim does *not* read on a ratio in the range of about 2.5:97.5 to about 10:90.

2. The Examiner’s interpretation of “alcohol content from the alcohol-containing material” or “alcohol content from the alcohol-containing distillate” of a compound in the claims is unsupported.

The Examiner contends that the phrases “alcohol content from the alcohol-containing material of component A” or “alcohol content from the alcohol-containing distillate of component B” means the same as the “alcohol content of” components A or B. *See* FF. 5. The phrases at issue occur in the following context:

wherein a ratio between **an alcohol content from the alcohol-containing material** of the component A and **an alcohol content from the alcohol-containing distillate** of the component B is in a range of about 97.5:2.5 to about 90:10. (Claim 1.)

The Examiner errs for several reasons. The Examiner cannot disregard the words “from the alcohol-containing material.” All the words in a claim must be considered in determining patentability. *See In re Miller*, 441 F.2d 689, 694 (CCPA 1971) (quoting *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970)). It is contrary to the holding in *Miller* to interpret an “alcohol content from the alcohol-containing material of component A” as simply an “alcohol content of component A.”

Second, the Examiner fails to consider the doctrine of claim differentiation. It is well established that differences among claims can be a useful guide in understanding the meaning of particular claim terms. For example, the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim. *See, e.g., Philips*, at 1314-15. In this case, claim 20 recites:

20. The malt fermented beverage according to claim 1, wherein an **alcohol content of the malt fermented beverage** is from 1 to 15%.

Claim 1 uses the phrase “an alcohol content **from**” something. Dependent claim 20 uses the phrase “an alcohol content **of**” something. Appellants clearly did not mean the phrases to mean the same thing. Applying the doctrine of claim differentiation, it is improper to equate the two phrases.

Third, the Examiner ignores the plain and ordinary meaning of the claim terms. *See Morris*, at 1054. Claim 1 recites in part:

an alcohol content from the alcohol-containing material of the component A . . .

The object of the preposition “from” is “the alcohol-containing material.” The object of the preposition “of” is “component A.” The prepositions clearly refer to different things, not the same things, as alleged by the Examiner.

Finally, the Examiner ignores the interpretive guidance provided by the specification. Components A and B are mixed together in a certain proportion in the beverage. *See, e.g.*, FF 6. The proportion of A and B **must yield the claimed ratio** between an alcohol content from the alcohol-containing material of the component A and an alcohol content from the alcohol-containing distillate of the component B. In Example 1 (*see* FF. 6), the ratio between **alcohol contents** of component A (beer) and component B (mugi shochu) is 5/44 or 1:8.8. If the proportion of component A in the beverage is increased, the ratio between alcohol contents of components A and B remains unchanged (i.e., 5/44). But the ratio between an alcohol content from the alcohol-containing material of the component A and an alcohol content from the alcohol-containing distillate of the component B increases. The final ratio can be 90:10, for example. *See* FF 7.

The Examiner only considers ratios between the alcohol contents of various components. He does not consider the proportion of components A and B necessary to achieve a ratio between an alcohol content from the alcohol-containing material of the component A and an alcohol content from the alcohol-containing distillate of the component B. When read in light of the specification, the Examiner's claim interpretation is clearly incorrect. It is thus unsupported and unreasonable.

3. Claims 1, 3-6, 9, and 19-20 stand rejected under 35 U.S.C. § 102(b), based on the Examiner's unsupported claim interpretation.

Claims 1, 3-6, 9, and 19-20 are rejected under 35 U.S.C. § 102(b) as allegedly anticipated by *CarBomb*, with additional evidence allegedly provided by *Guinness*, *Jameson Irish Whiskey*, *Guinness Stout*, and *Irish Cream*.

"Determination that a claim is anticipated under 35 U.S.C. § 102(b) involves two analytical steps: (1) the Board must interpret the claim language; and (2) the Board must then compare the construed claim to a prior art reference and make factual findings that 'each and every limitation is found either expressly or inherently in [that] single prior art reference.'" *In re Crish*, 393 F.3d 1253, 1256 (Fed. Cir. 2004).

Using the properly construed terms of claim 1, claim 1 is not anticipated by *CarBomb*. *CarBomb* allegedly is a mixture of Guinness Stout and Jameson Irish Whiskey. The alcohol content of Guinness Stout (component A) is 4.1%. The alcohol content of Jameson Irish Whiskey (component B) is 40%. The alcohol content from the alcohol-containing material of Guinness Stout (component A) of $(13 \text{ oz}) \times 4.1\% = (0.53 \text{ oz})$. The alcohol content from the alcohol-containing distillate of Jameson Irish Whiskey (component B) of $(1 \text{ oz}) \times 40\% = (0.40 \text{ oz})$. *CarBomb* thus discloses a ratio between an alcohol content from the alcohol-containing material of the component A and an alcohol content from the alcohol-containing distillate of the component B of $(0.53 \text{ oz} : 0.40 \text{ oz})$ or 1.32:1. *See* Parts 1 and 2, *supra*. The ratio at issue at *CarBomb* falls outside the claimed range of about 39:1 to about 9:1. Because *CarBomb* does not teach each and every limitation of claim 1, it cannot anticipate the claim. *See Crish*, at 1256.

The Examiner misconstrues the claim terms, when applying *CarBomb*. The Examiner improperly uses the ratio of whiskey:beer (i.e., B:A). *Compare* FF. 8 with Part 1, *supra*. The

Examiner further improperly uses the ratio of alcohol contents (i.e., 40%:4.1%). *Compare* FF. 8 with Part 2, *supra*. The rejection thus is erroneous and should be reversed.

Claim 1 is novel over *CarBomb*. The additional evidence allegedly provided by *Guinness*, *Jameson Irish Whiskey*, *Guinness Stout*, and *Irish Cream* relates to the alcohol content of the components of *CarBomb*. Final Rejection mailed April 15, 2010, p. 3-4. Even assuming the Examiner's purported alcohol contents are correct, the rejection remains erroneous, in view of the Examiner's claim misinterpretation.

Dependent claims 3-6, 9, and 19-20 incorporate all the limitations of claim 1, and thus are likewise novel over *CarBomb*. Accordingly, Appellants respectfully request the Board to reverse the rejection.

4. Claims 7-8 stand rejected 35 U.S.C. § 103(a), based on the Examiner's unsupported claim interpretation.

Claims 7-8 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *CarBomb*, as applied to claims 1, 3-6, 9, and 19-20, and in view of *Tripp*, with additional evidence provided by *Guinness*, *Jameson Irish Whiskey*, *Guinness Stout*, and *Irish Cream*,

A determination of obvious requires the combined references to teach or suggest all the claim elements. *See, e.g., CFMT, Inc. v. Yieldup Int'l Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003). Claims 7-8 depend directly from claim 1 and incorporate all the elements of claim 1. *CarBomb* fails to teach at least the claimed ratio in claims 7-8. *See* Part 3, *supra*. *Tripp* is relied upon for allegedly teaching malt content in a feed beer. *See* FF. 10. *Tripp* does not teach at least the claimed ratio, so *Tripp* cannot cure *CarBomb*'s defects. Accordingly, the combination of the cited references fails to teach at least the claimed ratio. Because the combined references would not have taught or suggested all the claim elements, the skilled artisan would not have been motivated to make or use the presently claimed beverage with a reasonable expectation of success.

Claims 7-8 are thus nonobvious over *CarBomb* in view of *Tripp*. Accordingly, Appellants respectfully request the Board to reverse the rejection.

5. Claims 1-6, 9, 11-16, and 19-20 stand rejected 35 U.S.C. § 103(a), based on the Examiner's unsupported claim interpretation.

Claims 1-6, 9, 11-16, and 19-20 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *Hoppy de Happy* in view of either *Shinozaki* or *Japan Alcoholic Beverages*, with additional evidence allegedly provided by *Japan – Taxes*.

Using the properly construed terms of claim 1, *Hoppy de Happy* does not disclose the claimed ratio. *Hoppy de Happy* is a mixture of Hoppy and shochu. The alcohol content of Hoppy (component A) allegedly is 0.8%. The alcohol content of shochu (component B) allegedly is 25%. The two components may be mixed in two proportions. In the first mixture, 90.9 oz of Hoppy is mixed with 9.1 oz of shochu. In the second mixture, 70.2 oz of Hoppy is mixed with 29.8 oz of shochu.

In the first mixture, the alcohol content from the alcohol-containing material of Hoppy (component A) is $(90.9 \text{ oz}) \times 0.8\% = (0.73 \text{ oz})$. The alcohol content from the alcohol-containing distillate of shochu (component B) is $(9.1 \text{ oz}) \times 25\% = (2.28 \text{ oz})$. *Hoppy de Happy* thus discloses a ratio between an alcohol content from the alcohol-containing material of the component A and an alcohol content from the alcohol-containing distillate of the component B of $(0.73 \text{ oz} : 2.28 \text{ oz})$ or 0.32:1. *See* Parts 1 and 2, *supra*. The ratio in the first mixture thus falls outside the claimed range.

In the second mixture, the alcohol content from the alcohol-containing material of Hoppy (component A) is $(70.2 \text{ oz}) \times 0.8\% = (0.56 \text{ oz})$. The alcohol content from the alcohol-containing distillate of shochu (component B) is $(29.8 \text{ oz}) \times 25\% = (7.45 \text{ oz})$. *Hoppy de Happy* thus discloses a ratio between an alcohol content from the alcohol-containing material of the component A and an alcohol content from the alcohol-containing distillate of the component B of $(0.56 \text{ oz} : 7.45 \text{ oz})$ or 0.075:1. *See* Parts 1 and 2, *supra*. Accordingly, the ratios in both mixtures disclosed in *Hoppy de Happy* fall outside the claimed range.

The Examiner misconstrues the claim terms in applying *Hoppy de Happy*. *See* FF. 11. The Examiner improperly uses the ratio of shochu:Hoppy (i.e., B:A). *Compare* FF. 8 with Part 1, *supra*. The Examiner further improperly uses the ratio of alleged alcohol contents (i.e., 25%:0.8%). *Compare* FF. 8 with Part 2, *supra*. The rejection thus is erroneous and should be reversed.

The Examiner relies on *Shinozaki* or *Japan Alcoholic Beverages* only for the alleged teachings that shochu is made from wheat. *See* FF. 12 and 13, respectively. Neither *Shinozaki* nor *Japan Alcoholic Beverages* discloses at least the claimed ratio. Accordingly, the combination of the cited references fails to teach at least the claimed ratio, which is missing from *Hoppy de Happy*. Because the combined references would not have taught or suggested all the claim elements, the skilled artisan would not have been motivated to make or use the presently claimed beverage with a reasonable expectation of success.

The Examiner relies on additional evidence provided by *Japan – Taxes* to allege that the alcohol content of shochu (component B) is 25%. Final Rejection mailed April 15, 2010, p. 6, ¶1. Appellants have provided an English translation of *Hoppy de Happy* showing that the alcohol content of shochu is 12.5%. Final Rejection mailed April 15, 2010, p. 6, ¶2. Appellants for the sake of argument use the Examiner's value. Nevertheless, the ratio calculated above falls outside the claimed range, even assuming the Examiner is correct *arguendo*.

Claims 1-6, 9, 11-16, and 19-20 are thus nonobvious over *Hoppy de Happy* in view of either *Shinozaki* or *Japan Alcoholic Beverages* with additional evidence allegedly provided by *Japan – Taxes*. Accordingly, Appellants respectfully request the Board to reverse the rejection.

6. Claims 7-8 and 17-18 stand rejected 35 U.S.C. § 103(a), based on the Examiner's unsupported claim interpretation.

Claims 7-8 and 17-18 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *Hoppy de Happy* in view of either *Shinozaki* or *Japan Alcoholic Beverages*, as applied to claims 1-6, 9, 11-16, and 19-20, and further in view of *Tripp*, with additional evidence allegedly provided by *Japan – Taxes*.

Claims 7-8 and 17-18 depend directly from claim 1 and incorporate all the elements of claim 1. *Hoppy de Happy* in view of either *Shinozaki* or *Japan Alcoholic Beverages* fail to disclose at least the claimed ratio in claims 7-8 and 17-18. The Examiner, in applying *Hoppy de Happy*, misconstrues the claimed ratio recited in claim 1. *See* Part 5, *supra*. *Tripp* is relied upon for allegedly teaching malt content in a feed beer, as in Part 4, *supra*. *See* FF. 10. *Tripp* fails to disclose at least the claimed ratio. *See* FF. 10. *Tripp* thus does not cure the defects of *Hoppy de Happy* in view of either *Shinozaki* or *Japan Alcoholic Beverages*. Accordingly, the combination of the cited references fails to teach at least the claimed ratio. Because the combined references

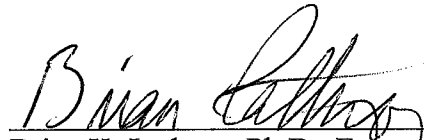
would not have taught or suggested all the claim elements, the skilled artisan would not have been motivated to make or use the presently claimed beverage with a reasonable expectation of success. Accordingly, Appellants respectfully request the Board to reverse the rejection.

For all the aforementioned reasons, all the pending claims comply with the relevant patent statutes. Appellants thus respectfully request the Board to reverse the rejections of record and remand the application to the Examiner with the instruction to allow the claims.

Respectfully submitted,

Date: October 12, 2010

By:



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VIII. Claims Appendix

Claim 1. (Rejected): A malt fermented beverage comprising:
an alcohol-containing material partly made of wheat or barley and produced by fermentation, serving as a component A; and
an alcohol-containing distillate obtained by distilling an alcohol-containing material at least partly made of wheat or barley, serving as a component B,
wherein the malt fermented beverage is produced by mixing the component A and the component B, and wherein a ratio between an alcohol content from the alcohol-containing material of the component A and an alcohol content from the alcohol-containing distillate of the component B is in a range of about 97.5:2.5 to about 90:10.

Claim 2. (Canceled).

Claim 3. (Rejected): The malt fermented beverage according to claim 1, wherein at least malt is used as a starting material for the alcohol-containing material of the component A.

Claim 4. (Rejected): The malt fermented beverage according to claim 1, wherein the alcohol-containing material of the component A is made of starting materials comprising malt, hop and water.

Claim 5. (Rejected): The malt fermented beverage according to claim 4, wherein the starting materials further comprise materials selected from the group consisting of rice, corn, sorghum, white potato, starch, sugars, wheat or barley other than malt, a bittering agent, and a coloring agent.

Claim 6. (Rejected): The malt fermented beverage according to claim 1, wherein the alcohol-containing material of the component A is beer or a low-malt beer beverage.

Claim 7. (Rejected): The malt fermented beverage according to claim 1, wherein the alcohol-containing material of the component A is an alcohol-containing material having malt proportion of 20% or higher.

Claim 8. (Rejected): The malt fermented beverage according to claim 1, wherein the alcohol-containing material of the component A is an alcohol-containing material having malt proportion of 40% or higher.

Claim 9. (Rejected): The malt fermented beverage according to claim 1, wherein the alcohol-containing distillate of the component B is shochu (Japanese distilled liquor), whisky, vodka, or spirits.

Claim 10. (Canceled).

Claim 11. (Rejected): The malt fermented beverage according to claim 1, wherein the alcohol-containing distillate of the component B is “mugi shochu” (shochu distilled from wheat or barley).

Claims 12-13. (Canceled).

Claim 14. (Rejected): The malt fermented beverage according to claim 11, wherein the mugi shochu is mugi shochu that is obtained from starting materials including wheat or barley, malted wheat or malted barley, and water.

Claim 15. (Canceled).

Claim 16. (Rejected): The malt fermented beverage according to claim 1, wherein the alcohol-containing distillate of the component B is wheat spirits.

Claim 17. (Rejected): The malt fermented beverage according to claim 1, wherein the alcohol-containing material of the component A is an alcohol-containing material having malt proportion of 100%, and the distillate of alcohol-containing material of the component B is otsu-rui mugi shochu.

Claim 18. (Rejected): The malt fermented beverage according to claim 1, wherein the alcohol-containing material of the component A is an alcohol-containing material having malt proportion of 40 to 60%, and the distillate of alcohol-containing material of the component B is wheat spirits.

Claim 19. (Rejected): The malt fermented beverage according to claim 1, wherein an alcohol content of the alcohol-containing distillate of the component B is from 25 to 45%.

Claim 20. (Rejected): The malt fermented beverage according to claim 1, wherein an alcohol content of the malt fermented beverage is from 1 to 15%.

Claims 21-23. (Canceled).

IX. Evidence Appendix

Appellants provide copies of the following references, which the Examiner entered into the record, and which Appellants rely upon in this appeal:

1. *CarBomb*, The Webtender, <http://www.webtender.com/db/drink/4194> (posted February 10, 2003). *CarBomb* was made of record in the Office Action mailed Nov. 25, 2009.
2. *Guinness*, Green's Discount Beverage Stores, <http://www.greensbeverages.com/guinness.html> (posted April 16, 2003). *Guinness* was made of record in the Office Action mailed Nov. 25, 2009.
3. *Jameson® Irish Whiskey*, Drinks Mixer™, <http://www.drinks.mixer.com/desc1016.html> (posted Oct. 19, 2003). *Jameson Irish Whiskey* was made of record in the Office Action mailed Nov. 25, 2009.
4. *Guinness Stout*, Drinks Mixer™, <http://www.drinks.mixer.com/desc586.html> (posted October 9, 2003). *Guinness Stout* was made of record in the Office Action mailed Nov. 25, 2009.
5. *Irish Cream*, Drinks Mixer™, <http://www.drinks.mixer.com/desc54.html> (posted October 11, 2003). *Irish Cream* was made of record in the Office Action mailed Nov. 25, 2009.
6. "Hoppy College: A Magazine Lecture," *Hoppy de Happy Dokuhon*, Kabushiki Kaisha Asupekuto (Aug. 22, 2000) pp. 30-35. *Hoppy de Happy* was made of record in the Information Disclosure Statement (IDS) submitted May 25, 2007; a verified English translation was submitted February 24, 2010; and an English translation was provided by the Office in the Office Action mailed April 15, 2010.
7. Application No. JP 60-241883 ("*Shinozaki*"). *Shinozaki* was made of record along with an English Abstract in the Office Action mailed Nov. 25, 2009.
8. *Japan –Alcoholic Beverages*, The Global Gourmet®, <http://www.globalgourmet.com/destinations/japan/alcoholic.html> (posted October 4, 2003). *Japan Alcoholic Beverages* was made of record in the Office Action mailed Nov. 25, 2009.
9. *Japan – Taxes on Alcoholic Beverages*, World Trade Organization, WT/DS8/R, WT/DS10/R, WT/DS11/R (July 11, 1996). *Japan – Taxes* was made of record in the Office Action mailed Nov. 25, 2009.

10. U.S. Patent No. 5,618,572 to Tripp *et al.*. Tripp was made of record in the Office Action mailed Nov. 25, 2009.

Attorney Docket No.: 47487-0001-00-US (226811)

Application No.: 10/582,336

Appeal Brief dated: October 12, 2010

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X. Related Proceedings Appendix

None.



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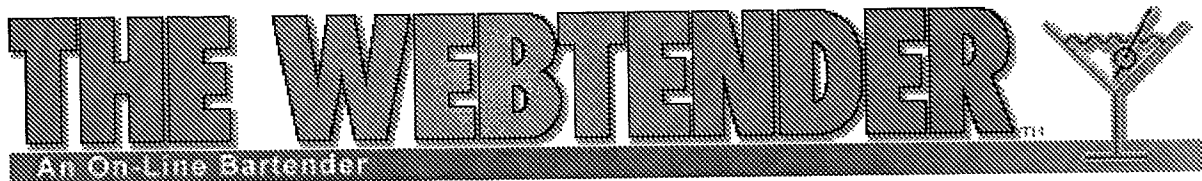
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Carbomb

Ingredients:

- 13-14 oz [Guinness stout](#)
- 1 oz [Bailey's irish cream](#)
- 1 oz [Whiskey](#) (Jameson's)

Mixing instructions:

Combine the Bailey's and Whiskey in a shot glass. Drop shot glass into beer. Should be finished immediately.

Drink Information:

Category: Beer

Alcohol: Alcoholic

Serve in: [Beer mug](#)

Rating: 6.6 - 522 votes [[vote](#)]

Contributor: [Ryan Fitzpatrick](#)

Added: 27.Jun.1998

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									Apr 21, 2005
									Apr 27, 2005
									May 07, 2005
									Jun 03, 2005
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GUINNESS



Brewing Materials

The following list contains a list of ingredients used to brew guinness stout, and also the various types of stout brewed by Guinness.

Malt

A type of barley which is first germinated then roasted to create maltose a natural sugar which contributes to the black colour of stout and also provides the life giving properties for the yeast to live on.

Yeast produces alcohol as a natural byproduct. Until 1987 the majority of malt was supplied by Minch- Norton of New Market, Dublin.

Barley

This gives stout its body, which can be experienced in the smooth texture of Guinness Stout and its ability to hold nitrogen, hence the fact that a good stout takes time to settle. The Guinness Brewery consumes approximately 7% on the entire Irish barley crop, preparing its own roast barley.

Hops

Hops give Stout its slightly bitter, yet fresh taste. Hops have been used since ancient Egypt, as they provide preservative properties when infused. Over 600 tonnes are used by the Guinness brewery each year, almost 1% of the world crop, these are mainly sourced from the USA, Australia the UK and Germany. Golding are the main variety.

The brewing process

Milling: the malt is first milled in to a coarse flour.

Mashing: The milled malt, barley flakes and roast barley are mixed

with hot water to form the grist. This process removes the fermentable sugar and flavour from the grains, this liquor is used in the next stage of the brewing process.

Extraction: The wort as is now called is sieved to separate the grains and the liquor. The liquor is sent to a brewing kettle. Used grain is used as cattle food.

Boiling: The wort is boiled with the hops at a constant temperature for 90 minutes.

Cooling: After the wort has settled it is filtered out of the kettle and cooled enroute to the fermentation plant.

Fermentation: The wort is placed in fermentation vessels with yeast (a strain of the original yeast that Arthur used himself), for 7 days, where at 25C the yeast changes the maltose into alcohol and CO₂.



Guinness Trivia

Why is Guinness Stout black ?

It obtains its colour due to the process of roasting the barley, this is carried out to convert maltase into maltose, a natural sugar

Why is the head on Guinness so creamy ?

Contrary to popular belief it is not the introduced nitrogen gas that creates the head, it is the proteins infused from the barley which give Stout its body i.e. the ability to hold the gas a mire raising agent as such.

How many calories are there in Guinness ?

Stout contains protein, alcohol and sugar, however is no more fattening than a pint of milk. Alcohol accounts for 65-75% of the calories Guinness.

How is Guinness poured ?

The correct way to pour Guinness is in a two part action. Firstly hold a clean dry pint glass at a 45 degree angle and proceed to pour until glass is 3/4 full. Allow the Stout to settle for 5 minutes, then fill the glass to the top.

Is Guinness Stout made from liffey water ?

No. Water comes from a source in the Wicklow Mountains, county Wicklow.

Are there any variations of Guinness Stout ?

There are approximately 20 variations of Guinness Stout worldwide.

How many countries is Guinness Stout sold in ?

It is sold in 150 countries and brewed in 50, El Salvador be the most recent, nov. 1995.

What is the optimum serving temperature for Guinness?
Guinness Stout should be served at between 5-8 degrees Celsius.

What is the origin of the slogan, "Guinness is good for you" ?
Having carried out market research(1920s) on behalf of Guinness,
S.H Benson, noted that people said they felt good after drinking
Guinness Stout. This slogan is still used in Africa where advertising
standards are more relaxed.

Is it true that Guinness Stout is served in hospitals ?
Yes, in Ireland Stout is available to patients of intestinal and stomach
treatments and also to blood donors, as Stout is high in iron content.
Guinness is good for you!

Now you can enjoy the perfect pint of GUINNESS® straight from
the bottle - so there's no need for a glass. Enjoy the authentic taste of
GUINNESS® anytime, anywhere thanks to another clever little
invention, the "rocket widget."

Once the bottle is opened, the "rocket widget" creates the famous
surge and forms the signature creamy head right inside. Every time
you take a drink from the bottle the "rocket widget" refreshes the
surge so that you get the perfect pint taste with every sip. Ingenious.

Your GUINNESS® Draught in bottles should be chilled for a minimum
of three hours before serving.

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JAMESON IRISH WHISKEY

INFORMATION

[[Whiskey](#) - [Irish](#) - Jameson]

Description

There is currently no information for this ingredient.

Alcohol (ABV) - 40.0% (80 proof)

Nutritional Information* (1 fl oz)

Calories (kcal)	69	Fiber	0 g
Energy (kj)	288	Sugars	0 g
Fats	0 g	Cholesterol	0 g
Carbohydrates	0 g	Sodium	0 g
Protein	0 g	Alcohol	11.3 g

* [About this information.](#)

Drinks containing Jameson Irish Whiskey:

[Dirty Irish Whiskey](#)
[Shamrock #2](#)
[Irish Highball](#)
[Toby's Special](#)



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GUINNESS STOUT

INFORMATION

[[Beer](#) - [Stout](#) - Guinness]

Description

A brand of stout beer made from several varieties of hops and of Irish origin, although now brewed worldwide.

Alcohol (ABV) - 4.1% (8.2 proof)

Nutritional Information* (1 fl oz)

Calories (kcal)	12	Fiber	-
Energy (kj)	50	Sugars	-
Fats	0 g	Cholesterol	0 g
Carbohydrates	1.1 g	Sodium	3 g
Protein	0.1 g	Alcohol	1.2 g

* [About this information.](#)

Drinks containing Guinness Stout:

Backfire On The Freeway	Guinness Shandy
Black & Tan	Hairball
Black and Brown	Half and Half
Black Fog	Irish Russian
Carbomb	Juicy Guinness Premier
Christmas Pudding	Miner's Lung
Flaming Yager	Paddy's Caffeine
Guinness Float	Smooth Black Russian
Guinness Punch	Trojan Horse

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Jun 06, 2003 *	Jun 04, 2004 *		Apr 21, 2006
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	Oct 10, 2004 *		
	Nov 17, 2004 *		
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IRISH CREAM

INFORMATION

[\[Whiskey - Irish Cream \]](#)

Description

A cream and chocolate based irish whiskey liqueur.

Alcohol (ABV) - 17.0% (34 proof)

Brands:

Bailey's, Carolans, Ryan's

Nutritional Information* (1 fl oz)

Calories (kcal)	100	Fiber	0 g
Energy (kj)	418	Sugars	-
Fats	0 g	Cholesterol	0 g
Carbohydrates	0 g	Sodium	0 g
Protein	0 g	Alcohol	4.8 g

* [About this information.](#)

There are 73 drinks with this ingredient.

Most popular drinks containing Irish Cream:

[\[Show all drinks \]](#)

[Buttery Nipple](#)
[Rattlesnake Shooter](#)
[Cape Breton Slide](#)
[China White #2](#)
[Beam Me Up Scottie](#)
[Dirty Monkey](#)
[Dead Green Frog](#)
[Fuck Me Up](#)
[Frozen Mudslide #2](#)
[Black Unicorn](#)
[Irish Cactus](#)
[Zoo Station](#)
[Chocolate Chip](#)
[Bacardi O Coffee](#)
[Quick Fox](#)
[Russian Qualude](#)
[Wet Pussy](#)
[O & Cream](#)
[Mike's Chocolate Pudding](#)
[Asphalt Road](#)
[Banana Slip](#)
[Leprechaun's Gold](#)
[American Leroy](#)
[Toolkit](#)
[Creamy Kiss](#)
[The Whole Maryann](#)
[Fuzzy Irishman](#)
[Chocolate Almond](#)
[Dreamy Winter Delight](#)
[Milky Way Martini](#)

HOPPY COLLEGE: A MAGAZINE LECTURE
[ホッピーカレッジ：誌上講座]

N/A

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TRANSLATED TITLE:	HOPPY COLLEGE: A MAGAZINE LECTURE
FOREIGN LANGUAGE TITLE:	ホッピーカレッジ : 誌上講座
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What Is Hoppy?

Hoppy is a drink to let you be happy (laugh). It has a long history and came into the world in 1948. It has been sold as a nonalcoholic beer. For some reason, however, it was destined be mixed with *shōchū* [Japanese liquor, translator]! Beer was expensive in those days, and people who could not afford any beer loved hoppy mixed with *shōchū*. That is, it is a cheap drink for the common person. Its history is older than that of lemon sour or the history of other drinks, and hoppy can be said to be the origin of mixed drinks.

How to Drink Hoppy Deliciously

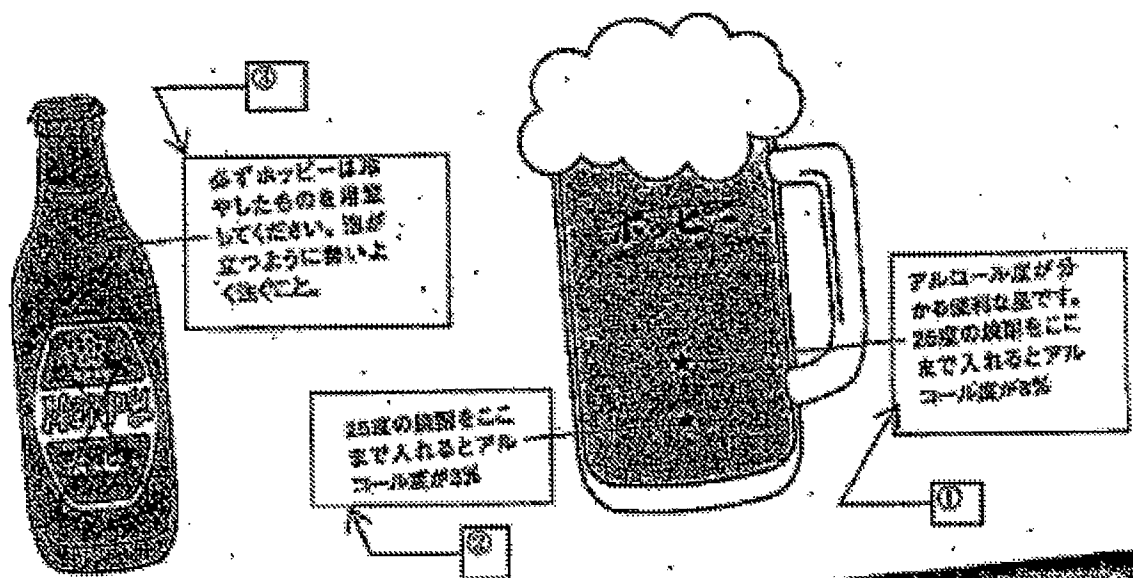
It is a "three cools" method. It is important to cool all of the hoppy, the *shōchū*, and the beer mug beforehand. You should not put in any ice.

Next, I will explain the method. Pour *shōchū* into a beer mug. Adjust the alcohol strength in accordance with the star [see figure, translator] on the beer mug. When you pour *shōchū* of 25 % alcohol content by volume up to the bottom star, the alcohol strength will be about 3 %. In contrast, if you pour it up to the top star, the alcohol strength will be about 8 %. Enjoy drinking hoppy with your favorite alcohol strength.

Next is how to pour hoppy. Pour hoppy vigorously so that it will be well mixed with the *shōchū*. This way it makes the bubbles form better.

When you get used to it, you should be able to pour hoppy in accordance with the amount of *shōchū* without leaving any hoppy in the bottle. Never mix them together using a *maddler* [transliteration, translator] or dispensable chopsticks. Enjoy drinking hoppy mixed with a tasteless *shōchū* with a grade of A [*Kou*].

This is how to drink hoppy deliciously. There are many bars where hoppy is served with ice just as it is, though.



① This is a convenient star that lets you know the alcohol strength.

When you pour *shōchū* of 25 % alcohol content by volume up to this star, the alcohol strength will be about 8 %.

② When you pour *shōchū* of 25 % alcohol content by volume up to this star, the alcohol strength will be about 3 %.

③ Make sure to prepare chilled hoppy. Pour hoppy vigorously so that its bubbles form.

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We Still Love Hoppy

Thank you for your frequent patronage. Goodness! I feel embarrassed. But, I'm happy. Hi, I am Hoppy Yaruzō. My fans named me this because they say, "*Hoppy yaruzō* [have some hoppy, translator]." But, I am 52 years old already this year. Ha ha ha. I don't look like such an age, do I? I was born and bred in Akasaka in Tokyo. I'm a genuine Tokyoite.

All of my tastiness, looks, and devoted fans have never changed since my birth. I am the same old Hoppy Yaruzō. I'm happy because my fans still love me without a change of mind. Heh heh heh, cough.

Now let me introduce myself for anybody who has heard my name but has never had me yet.

My alcohol strength is just 0.8 %. But, that's why you can have a refreshed feeling when you drink me. Besides, I am a healthy and low calorie drink, so I am well loved by women.

Basically, I am brewed in the same way as beer. But the raw materials are Nijo barley Golden Melon, aroma hop produced in Hallertau, Germany, and yeast from a yeast bank in Weihenstephan, Germany, which are all selected carefully, used luxuriously, and

prepared with natural water ... well, in short, I am a "malt fermented drink" brewed with the best raw materials.

Of course, the standard way to drink me is "mixing with *shōchū*" - as hoppy fans may know, hoppy mixed with *shōchū* gives you a really good, mellow feeling, which other alcohol does not provide. I forgot who began it first, but the rumor that hoppy into which *shōchū* had been poured was yummier widely spread due to the insufficient availability of alcohol just after the war. This method underwent a big boom. Today, people still support that method in a wide range, because hoppy is cheap and tasty.



Hoppy Yaruzō (52 years old)

A yummy drink born in Tokyo.

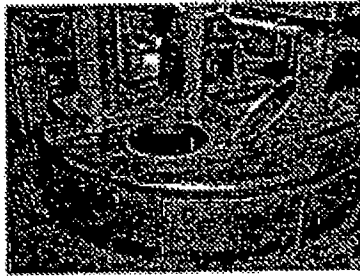
A little shy regardless of his age.

/4

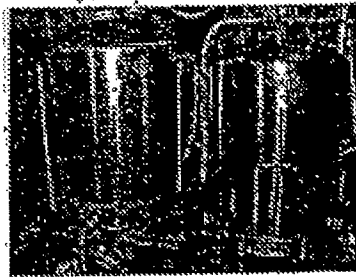
Hoppy Factory Visit

We visited a factory in Chofu, which is the only place where large amounts of hoppy are produced in Japan, or, indeed, in the

world. Not to mention, although it is completely automated, it still has an atmosphere of being handmade in this factory.



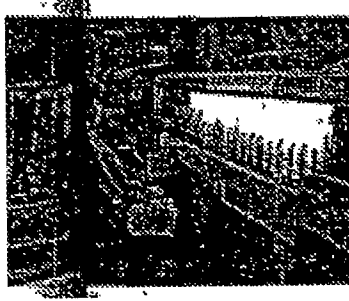
1. This is a preparation tub where malt is saccharified. It can be said to be the first step to brew hoppy. Malt is boiled and cooled off with cornstarch and hop. It is hard work.



2. Hoppy that has been fermented for 14 days is distilled. At this time, it is in a condition of having a lower alcohol strength than a normal beer. After that, it becomes hoppy through a process that is a company secret.

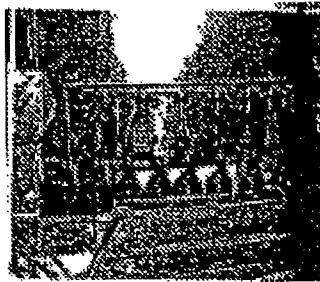


3. Returnable, empty bottles collected from liquor shops are washed. In many cases, the bottles have cigarette stubs, garbage, or other trash inside. Since they are carefully washed in four separate tubs continuously, you do not need to worry.



4. Examination is conducted to confirm if the washed bottles have been properly cleaned. Nobody should talk to workers. We stood still like invaders (sorry) even during our reporting. Good, keep up with the fine work!

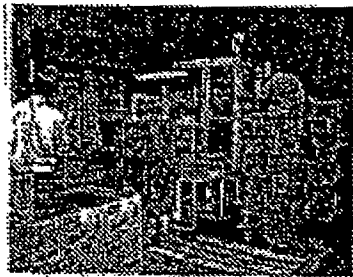
/5



5. Bottles washed cleanly came out onto the line continuously. Now, hoppy will be poured into these bottles. We don't know why, but it is exciting to see this step.



6. Bottles with hoppy came out in a stream. This worker conducts the final check to see if there are any impurities in the bottles and if the labels are attached to the bottles properly.



7. This worker is putting the bottles that have hoppy poured into them onto the forklift truck. Is this the state of mind of a father who gives his daughter away in marriage? I hope you will be drunk by a person who really loves you, hoppy! Make sure to watch out for ice!



8. Here you see these mountain-like accumulated bottles of hoppy. Every day hoppy is delivered from here to taverns or liquor stores where hoppy fans are waiting.

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ホッピ-カレッジ

誌上講座

ホッピーってなに？

ホッピーは、ビールと果汁のミックス飲料で、爽やかな味わいが特徴です。また、ホッピーには、ビタミンCが豊富に含まれており、免疫力を高める効果があります。さらに、ホッピーには、糖質が低く、ダイエットにもおすすめです。ホッピーは、夏の定番飲料として、多くの人々に愛されています。

ホッピーの正しい飲み方

それは「三冷主義」。ホッピーは、冷たい状態で飲むのがおすすめです。また、ホッピーには、氷を入れて飲むのがおすすめです。氷を入れることで、ホッピーの爽やかな味わいが引き立ちます。さらに、氷を入れることで、ホッピーの糖質が低くなります。ホッピーは、夏の定番飲料として、多くの人々に愛されています。

アルコール度が分
かる便利な星です。
ホッピーの純粋さここ
まで入れるとアル
コール度が8%

ホッピーってなに？

ホッピーの正しい飲み方

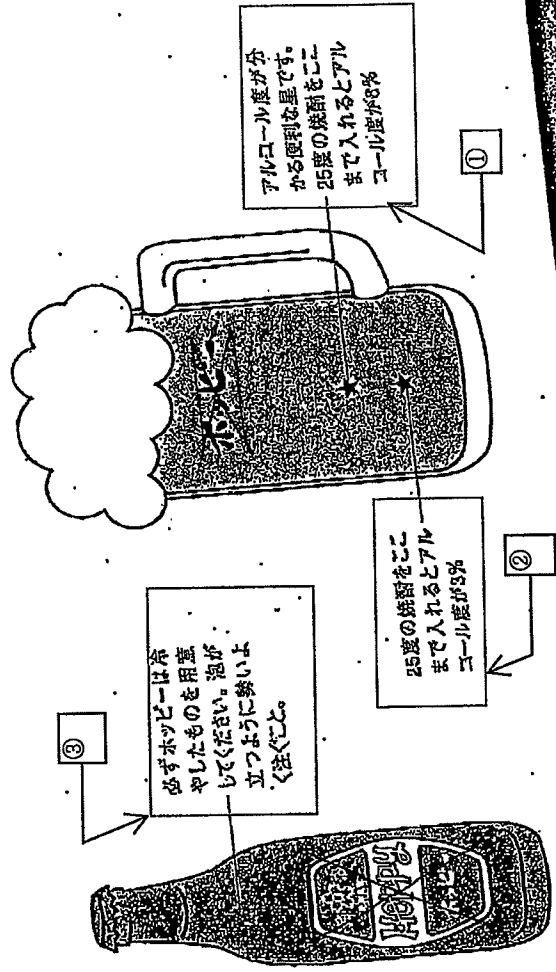
それは「三冷主義」ホッピー、焼酎、シヨウキをすべて冷やしておくと大切なのです。氷を入れてはいけません。

では作法です。シヨウキに焼酎を入れます。シヨウキの星でアルコール度を調整しましょう。下の星まで25度の焼酎を入れるとアルコール度は約3%になり、上の星まで入れると約8%になります。お好みの度数で楽しんでください。

次はホッピーのつぎ方にまゐります。焼酎とホッピーがよく混ざるように勢いよく注ぎましょう。そのほうが泡もよく立ちます。

慣れれば、焼酎の量に合わせて瓶の中のホッピーを余らせることなく注ぐことができるはずです。くれぐれもアトラや割り箸でかき混ぜないでください。焼酎は味のない甲類の焼酎で楽しんでください。

これがホッピーの正しい飲み方なのです。当然のように氷を入れて出す店が多いけど。



2

やっぱりホッピーが好き

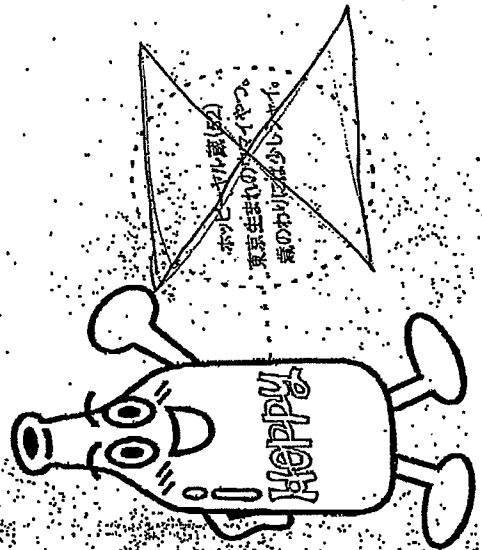
「まいどーいやはや照れますね。でもうれいさ。こんちわホッピーヤル蔵です。フアンから「ホッピー飲んでー」ってんで名付けられたんえけだ。今年でもう52なんすよ。フッフ、そんな歳にや見えないでしょう。あつしは東京は赤坂生まれの赤坂育ち。ハリハリの江戸っ子なんす。

生まれたときからおいしさもルックスも、根強いフアンも変わらない。相変わらずのホッピーヤル蔵なんです。幸せモンですよ。いまだにフアンの愛、愛わらずなんですから。エへへ、ホッ。

さて、ホッピーって名前は何だことがあってもまだ飲んだことのない人のために自己紹介しときますネ。

アルコール分はわずか0.8%なんですが、それゆえにスグキリとした飲み心地、さらに健康的で低カロリー。なんで結構女性にもエテてんですよ。

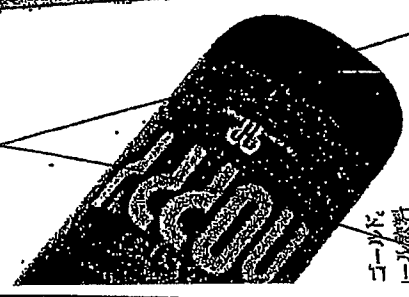
基本的にビールと同じ造られ方をしているんですが、原料は厳選された三条大麦二ホリテ、ヘムロン、ドイツ、ハラタウ産



アロマホップ、ドイツ、ワイベンシエフアン酵母銀行の酵母を賣沢に使い、さらに天然水仕込みで作られた……まあ簡単にいうと、最良の原料を使った「麦芽発酵飲料」なんです。

もちろん、スグキリな飲み方は「健康飲料」ってホッピーフアンならここに存じでしようが、焼酎で割ったホッピーはほかの酒にない、爽い心地になれるんすよね。誰が最初に始めたのか忘れたけれど、戦後間もないころはアルコール不足だったモンで、ホッピーに焼酎を入れ、て飲むとウマイという噂が広がったワケ。それが大ブームになって、今でもウマイウマイで暢快に支持されてんことを三

ホッピー瓶の変遷



ゴードル、コーラ飲料を定着させたのが、ホッピーです。

ホッビー工場見学

日本、いや世界でも唯一、ホッビーが生産されている調布の工場へ行ってきました。当然、機械化はされているんだけど、手作りという雰囲気がいびつたりとハマる工場でした。



きれいに洗浄された跡が
箱々とラインに登場して
きました。これからホッ
ビーが注入されるのです。
こまごまのを見つめるとな
か、ワクワクしてきます。

5

酒屋さんから回収した、
リターナブル瓶の空瓶を
洗浄します。煙草の吸い
殻やゴミなどが入ってい
ることが多いそうです。4
槽に分けて丁寧に洗浄し
ているので安心ですよ。

3

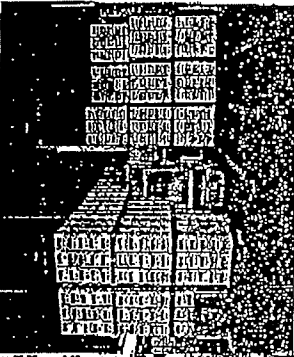
14日間、発酵させたホッ
ビーをろ過します。この時
点では普通のビールより
アルコール度の少ないビ
ールのような状態です。こ
のあとに企業秘密の行程
を経てホッビーになります。

2

麦芽を糖化させる仕込み
槽です。ホッビーを造る
第一段階といえます。コ
ンスタターチやホップと
一緒に煮沸されたり冷却
されたりするのです。大
変です。

1

ホッピー工場見学



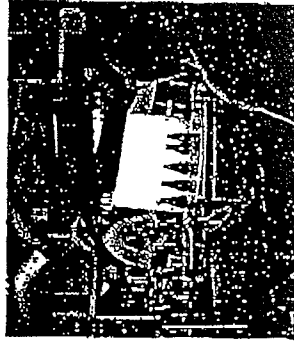
8

どうです、このホッピーの山。ここから、ホッピーファンの待つ居酒屋や酒屋にホッピーが毎日、届けられるのです。



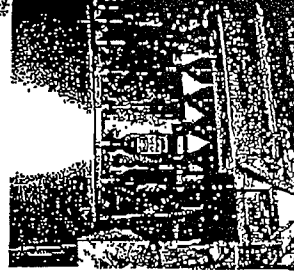
箱詰めしたホッピーをフォークリフトに乗せています。線を出す父娘の心境とはこのことか？ ホッピーが本当に好きな人に飲まれろよ！ 氷にはくれぐれも気をつけろよ！

7



6

ホッピーの入った瓶が流れてきました。瓶の中に不純物が入っていないか、ラベルがキチンと貼られているかの最終の確認をしています。



5

きれいに洗浄された瓶が箱々とラインに登場してきます。これからホッピーが注入されるのです。こういうのを見てるとなかなか、ワクワクしてきますね。



4

洗浄した瓶がキチンと洗われていないか検査をしていきます。瓶がはいてはいけません。教科中も瓶人形のようには（ホッピーナサイ）ビクリもしませんでし



3
酒屋、リター、洗浄、乾やこ、るこ、権に名、ている

(3) 微細濾過——多孔質のセラミック、あるいは微細な穴が開いたステンレスの濾板などを使用して、酵母を濾過し、糖液液汁、生などに菌菌を除去する。抗結（結晶）生ビール。

（森田）

27 ビールの楽しみ方いろいろ——カクテルとビールの変わり種

ビールのカクテルを飲もう

ビールのカクテル？ と不思議に思う人もいるかもしれませんが、世界にはいろいろなビールの飲み方があります。ここではビールのカクテルを楽しみましょう。

アルコールに弱い人のために勧めます。

〈ネバー・マインド〉——グラスにレモネードを半分入れ、その上からビールを静かに満たす。恋人同士で二本のストローで仲良く飲むではいかが。夢を語り、また、ディスコで踊るときに良いかも。

〈ヘッド・アイ〉——よく冷やしたトマトジュースをコップに半分をそぎ、次にビールで満たし、軽くステアして飲む。

〈シャンティ・ガフ〉——中型タンブラーにスクワット二〇ccをそそぎ、ジンジャー・エールで満たして飲む。

ありきたりのビールに飽きた人には、異なったビールをミックスして自分にあつたビールをつくらせてみてはどうでしょう。

〈ヘーフ・アンド・ヘーフ〉——中型タンブラーによく冷えたスタウトとビールを半々入れて飲む(スタウトと黒ビールでもよい)。

ビールでは物足りないという人は、ジンとミックスして飲みましょう。

〈ドックス・ノーズ〉——中型タンブラーに六〇ccのジンを入れ、よく冷えた黒ビールを満たして飲む。ジンは軽い品質のものが良いようだ。

水割りウイスキー、お湯割り焼酎ばかり飲むのではなく、ウイスキー、ジン、アクリットや焼酎のストレートを、ビールをチェイサーにして飲むのがウウというものです。

〈ボイラー・メイカー〉——ウイスキー・ストレートをビールをチェイサーにして飲むこと。

ビールの香りを少し変えてみましょう。別の世界が開けます。

〈エール・サンガー〉——中型タンブラーに茶さじ半分の砂糖を入れ、少量のエールで溶かす。氷塊二―三個を加えよく冷えたエールを満たし、ナツメグ一つまみを振りかけて飲む(ビール、黒ビール、スタウトを用いてもよい)。

仕事で疲れた人は、ビールとともに良質のタンパク質をとり、疲れを癒しましょう。

〈エッグ・ビアー〉——大型タンブラーに卵黄一個と砂糖一さじを入れよく混合し、氷塊二―三個を加え、冷やしたビールを満たして飲む(卵黄の代わりに卵一個を用いてもよい)。

シャンパンとビールをミックスして豪華に飲みましょう。シャンパンとビールのつまみが調和してとてもおいしくなります。

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〈フランク・ベルベット〉——大型タンブラーによく冷やしたスタウトとシャンパンを半々に入れて飲む。これはビスマルクともいう。よく冷えたビールとシャンパン(ベルスチット・ストリート・ベルベットという)・ポーターとシャンパン(ベルベットという)でもよい。

ビール缶蓋の上に塩をのせ、ライム果汁を垂らして飲むメキシコの独特の飲み方や、コロンビアのレファアファ(ヘーフ飲料とビールを半々に混ぜたもの)やシホン(ソーダとビールを半々に混ぜたもの)という飲み方もあります。

ビールの変わり種いろいろ

世界には、まだ日本であまり知られていないビールがあります。飲んでみるとそれなりのおいしさがあり、その地方の風土や人々の暮らしがみえておもしろいものです。

ベルギーには、ブラッセル周辺のブリニール地方のムキ(オオムキ木〇%、コムキ四〇%)とホップを原料として、野生酵母で発酵させ極端なぬくもりと熟成させてつくられるランビックと呼ばれる自然発酵ビールがあります。

このビールに同様にしてつくった一年もの、二年もの、三年ものビールを混ぜ、さらに熟成させ発酵性を強めたグースというビールがあります。酸味が強く、熟成した香味とホップの香りがよく調和して、ごくたまにシャンパンのようなビールです。

この地方は果実が豊富です。このランビックに、果実を混ぜて熟成させたフルーツビールがあり

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PATENT ABSTRACTS OF JAPAN

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C12G 3/12

(21)Application number : 59-096672

(71)Applicant : SHINOZAKI SHOTEN:GOUSHI

(22)Date of filing : 16.05.1984

(72)Inventor : SHINOZAKI HIROYUKI
MIYATA AKIRA

(54) METHOD FOR IMPROVING FLAVOR OF SHOCHU (LOW-CLASS DISTILLED SPIRIT)

(57)Abstract:

PURPOSE: To obtain SHOCHU (low-class distilled spirit) having mellow and rich flavor without smell of SHOCHU and additives, by adding steamed embryo bud powder obtained by absorbing moisture in wheat embryo bud or defatted wheat embryo bud powder, and steaming the powder to unrefined SHOCHU (low-class distilled spirit) during fermentation in producing SHOCHU of class OTSU (B) (distilled in a primitive distillation still).

CONSTITUTION: Embryo bud powder prepared by absorbing moisture in wheat embryo bud or defatted wheat embryo bud powder, steaming the resultant powder in an amount of preferably 20W40wt% based on a fermentation raw material is added to unrefined SHOCHU (low-class distilled spirit) during fermentation in producing SHOCHU of class OTSU (B) (distilled in a primitive distillation still) to give the aimed SHOCHU.

⑫ 公開特許公報(A) 昭60-241883

⑬ Int. Cl.⁴
C 12 G 3/12識別記号 庁内整理番号
7236-4B

⑭ 公開 昭和60年(1985)11月30日

審査請求 未請求 発明の数 1 (全6頁)

⑮ 発明の名称 焼酎の香味改善法

⑯ 特 願 昭59-96672

⑰ 出 願 昭59(1984)5月16日

⑱ 発 明 者 篠 崎 博 之 福岡県朝倉郡朝倉町大字宮野1805-1
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㉑ 代 理 人 弁理士 滝野 秀雄

明 細 書

1. 発明の名称

焼酎の香味改善法

2. 特許請求の範囲

(1) 常法による乙類焼酎の製造過程において、その醱酵中のもろみに小麦胚芽又は脱脂小麦胚芽の粉末を吸湿、蒸きようさせて添加することを特徴とする焼酎の香味改善法。

(2) 小麦胚芽又は脱脂小麦胚芽粉末の添加量が醱酵原料に対し10～50重量%である特許請求の範囲第1項記載の焼酎の香味改善法。

3. 発明の詳細な説明

本発明は乙類焼酎の香味改善法に関する。

(産業上の利用分野)

周知のように焼酎は我が国では酒税法上甲類と乙類とに分類され、甲類は連続式蒸留機により蒸留しながらフーゼル油等の不純物を除去して得たアルコールを水で稀めたものを云い、乙類は甲類以外の焼酎で単式蒸留機で蒸留され、種々のアルコール醱酵副産物中の揮発性物質を副成分とし

て含有するものを云っている。しかし甲類焼酎は無色無臭であるが、乙類焼酎は使用する原料により独特の香味を有しており、九州地方を主産地とする我が国の伝統的な蒸留酒として知られている。

(従来の技術)

一般に乙類焼酎としては粕取焼酎及び米焼酎、麦焼酎、いも焼酎その他雑穀類を醱酵蒸留して製造される種々のもろみ取焼酎が知られているが、これらの焼酎には何れも原料起原の特有の臭味、焦げ臭、油臭、刺激臭などの所謂焼酎臭が伴うため、一部の地域又は人々において愛飲されているものの、他の酒類例えば日本酒、ビール、洋酒等のように普遍的には飲用されていない。

しかし最近に至り、乙類焼酎の製造技術は著しく進歩し、焼酎特有の臭味等がかなり改善されてきたこともあって、次第に広い地域に普及しつつあるが、更に多くの人々に愛飲されるためには、所謂焼酎臭を完全に除去すると共に、好ましい香味を賦与する等多様化をはかる必要がある。

従来、かかる乙類焼酎に特有の所謂焼酎臭を除去することを目的とした焼酎の製造法として、その製造工程において主原料中に摺り潰した胡麻を混入し、醱酵蒸留して胡麻焼酎を製造する方法（特公昭56-36914号）或は小豆を蒸煮し、潰したものを同様に混合し醱酵蒸留して小豆焼酎を製造する方法（特公昭57-38234号公報）が知られている。

しかし、これらの方法では焼酎臭が除去される反面、胡麻臭或は小豆臭などの添加物特有の香味が強調された焼酎が得られるという問題点がある。（発明が解決しようとする問題点）

本発明はかかる観点から、乙類焼酎から所謂焼酎臭を除くと共に特有の添加物臭がなく、一般の嗜好に広く適合するまろやかで香味豊かな焼酎に改善すると共に出来得れば健康上にも好ましい焼酎を製造することを目的としてなされたものである。

（問題点を解決するための手段）

すなわち本発明は常法による乙類焼酎の製造過

程において、その醱酵中のろみに小麦胚芽又は脱脂小麦胚芽の粉末を吸湿、蒸きょうさせて添加することを要旨とする焼酎の香味改善法である。

一般に小麦胚芽は小麦種子中に約2%程度含まれ、発芽の際に幼根や子葉となり、生命力の中心として最も重要な部分である。従って、含有成分も濃厚であり高カロリー源としての脂肪、生命活動に必要な蛋白質や各種の酵素、ビタミン類、ミネラルなどを多量に含有している。このため小麦胚芽は食品として栄養価値が高く、特にビタミンEの含有量は胚芽1kg中3gにのぼり、天然型ビタミンEの給源として貴重な存在とされている。その他ビタミンB群も豊富に含まれ、特に他の食品には少ないビタミンB₆が豊富に含まれている。

小麦胚芽は小麦粉の製造工程中に麹との混合物として分離され、この混合物を精製した純度の高いものは健康食品として、又小麦胚芽油の原料として使用されるが、麹の混入度の高い粗製のものは飼料の栄養補給源として使用されている。

小麦胚芽から抽出によって得られる小麦胚芽油

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にはリノール酸及びビタミンEが多く含まれているほか動物の栄養、生長、生殖に効果があるとされるオリザノールの存在も認められている。小麦胚芽の健康面への効果としては栄養および薬理的な効用のほかビタミンEなどの抗酸化作用もあり、用途としては栄養油、ビタミン剤配合などのほかにビタミンA、D剤、肝油などに加えて栄養価値を向上させ、同時にビタミンAの酸化防止をはかったり、化粧品に配合して皮膚の美容と健康に役立たせるなど広い利用範囲をもっている。

脱脂小麦胚芽は精製された小麦胚芽より胚芽油を抽出した副産物として得られるもので、栄養的には十分脱脂粉乳の代用となる程度の要素を含有しており幼動物の飼料として使用される他、小麦粉に配合して各種菓子に利用され、軽い食感と風味を与える効果があり、ダイエットフードなどにも使用されている。

本発明者等はいかかる小麦胚芽又は脱脂小麦胚芽の粉末を蒸して乙類焼酎の製造原料の一部として使用し、主原料と同時に醱酵、蒸留させることに

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より乙類焼酎に特有の臭味、焦げ臭、油臭及び刺激臭などの所謂焼酎臭が除去され、まろやかで香味豊かな焼酎に改善し得ることを見出し本発明に至ったものである。

以下に本発明を工程順に順を追って説明する。

(1) 米麴の製造工程

米を第1次原料として回転式ドラム製麹機と静置自動通風式製麹機との組合せにより常法に基づいて米麴を製造する。すなわち、先ずドラム製麹機内に精白米を投入し、注水、ドラム回転、排水の操作を2～3回繰返して洗米した後、15～20℃の水中に2～5時間浸漬する。浸漬時間は米の硬軟、性質を考慮して調整する。浸漬終了後ドラムを回転し送気しながら水切りする。水切り後の米の水分は30～35%、吸水率は25～30%となる。

次いでドラム内に蒸気を送入して蒸きょうする。米の温度が100℃に達した時一時蒸気を止め、ドラムを2～3回回転させてドラム内の米を均一に混合して再び蒸気を送入する。この操作を10

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～15分後に再度繰返して100℃に達してから50～60分蒸きょうを継続し蒸し米を作る。蒸し米の水分は37～40%、吸水率は35～40%となる。

次に蒸し米を約36℃になる送風と回転によって冷却した後、適量の種こうじを散布して十分に回転混合する。次いで36～38℃の温度範囲で15～18時間通風回転しつつ培養を行ない米粒上に麹菌の菌糸を活着させる。

この時点で蒸し米をドラムから取出して静置自動通風式製麹機の網棚上に移しかえる。蒸し米をこの網棚上に均等に広げた後、36～37℃で10～12時間、更に32～33℃で6～8時間培養を継続して麹菌を米粒全面による繁殖させ、麹特有の芳香が得られた時点で約20℃に冷却して米麹を得る。得られた米麹は使用時まで冷暗所に保存される。なお、上記温度範囲の調整は自動温度調節機を用いて自動的に行なわれる。

(2) 第1次もろみの製造工程

(1)により製造した米麹を第1次醱酵槽に入れ、

これに適量の水を加え、温度を20～25℃に調整した後、予め酵母培養槽で純粋通気培養し、遠心分離して得た純粋な焼酎酵母を適量添加し第1次醱酵を行なわせる。酵母添加後1日で品温は約30℃まで上昇するので以後徐々に品温を下げながら6～7日間醱酵を行なわせることにより、アルコール分10～15%を含有する第1次もろみが得られる。

上記(1)及び(2)の工程は精白米を第1次原料として使用する場合について説明したが、精白大麦を第1次原料として同様に麦麹および第1次もろみを製造することができる。

(3) 熟成もろみの製造工程

(2)の工程で得られた第1次もろみを大型の第2次醱酵槽に移し、適量の水を加え、更に別途第2次原料として精白米、精白大麦等の穀類を(1)の工程と同様に蒸きょうした後、約23℃まで冷却して得た蒸し穀類を所定量加えて温度を20～25℃に調整し第2次醱酵を行なわせる。醱酵開始後温度は徐々に上昇し、2日後に約30℃に達して

醱酵は最も旺盛となり、以後次第に緩やかになりもろみ温度も26～27℃まで低下する。

この第2次醱酵開始後2～3日目の醱酵の最も旺盛な時期に第3次原料として小麦胚芽粉末又は脱脂小麦胚芽粉末を吸湿後蒸きょうして得た蒸し胚芽粉を適量の水と共に所定量添加して醱酵を継続する。

この場合添加される蒸し胚芽粉は精製小麦胚芽又はこれから常法により小麦胚芽油を抽出した残りの脱脂小麦胚芽を粉碎して粉末としたのち、適量の水を散布して十分混合し、水分約20～30%に調整して5～6時間堆積し、水分の均一化をはかり、次いでよく混合しながらほぐし連続蒸米機を用いて蒸きょうし蒸した小麦胚芽粉を作る。これを直ちに連続放冷機を用いて品温を約25℃以下に冷却したものを使用する。

小麦胚芽又は脱脂小麦胚芽粉末の添加量は第1次及び第2次原料として使用した穀類の合計量に対し10～50%、好ましくは20～40%である。添加量が10%未満では製品の焼酎臭の除去が不十分となり、又50%を超える場合はもろみ

の性質が悪化し、次工程の蒸留に支障をきたすおそれがある。

第2次醱酵開始後12～16日で醱酵を終了し、アルコール分14～16%を含む熟成もろみが得られる。

(4) 蒸留工程

(3)の工程で得られた熟成もろみを常圧又は減圧状態で蒸留する。常圧蒸留の場合は通常の単式蒸留機により沸点90～100℃で蒸留を行ない、アルコール分38～42%の乙類焼酎を得る。一方減圧蒸留の場合は単式減圧蒸留機によ40～50mmHgの減圧下、沸点40～45℃で蒸留を行ない、アルコール分38～40%の乙類焼酎を得る。

(発明の効果)

常圧蒸留によって得られる焼酎は濃厚で力強くかつ芳醇な香味を有し、又減圧蒸留によって得られる焼酎は高い芳香と軽快な味を有し淡麗優雅な焼酎となり、両者共に乙類焼酎の欠点である臭味、焦げ臭、油臭および刺激臭などの所謂焼酎臭は全

く除去される。

なお実際の製品製造に当っては上記の蒸留方法の異なる2種類の焼酎を適宜ブレンドして一定期間熟成させた後容器詰めを行なうことにより、より調和のとれた香味の焼酎を得ることができる。

なお、本明細書においてアルコール分の%は容量%を示し、その他の%は特記しない限り重量%を示す。

(実施例)

実施例1

本実施例では第1次および第2次原料として精白米を使用し、又第3次原料として脱脂小麦胚芽粉末を使用した場合について説明する。

なお、本実施例で使用した精白米および脱脂小麦胚芽の原料組成は第1表に示すとおりであり、脱脂小麦胚芽は純度90%以上の小麦胚芽より小麦胚芽油を抽出除去した後粉碎したものを使用した。

又、種麹として焼酎用河内菌（白麹）を使用し、酵母は醸造協会の焼酎1号酵母を使用した。

更に、成分分析値の測定は国税庁所定の分析法によって行なった。

第1表

原 料 組 成	精 白 米	脱脂小麦胚芽粉
水 分	15.5%	4.5%
粗蛋白質	6.2%	40.0%
粗脂肪	1.1%	0.6%
粗灰分	0.8%	5.2%
粗せんい	0.4%	1.5%
可溶性無窒素物	76.0%	48.2%
(全糖分)	(81.5%)	(43.0%)

次に製造工程を詳細に説明する。

(1) 製さく工程

回転ドラム式製麹機の回転ドラム内に精白米1000kgを投入し、20℃で20分水洗し水切りした浸漬米1280kgに蒸気吹込みを行ない、米の温度が100℃に上昇してから40分間蒸し、

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蒸し米1380kgを得た。次いで冷風を吹込んで36℃に冷却した後、種麹1kgを均一に散布し、ドラムの回転により混ぜ合せ36～38℃で20時間自動制御により通風回転しながら培養した。次いで培養終了後の麹を切返ししながら静置自動通風式製麹機内の棚に移し替え、36～37℃で12時間、更に32～34℃で8時間計20時間自動制御により冷風を吹込みながら培養を継続した。培養終了後20℃に冷却して水分23.6%、酸度6.5、糖化力17.0の米麹1200kgを得た。

(2) 熟成もろみの製造工程

(1)の工程で得られた米麹1200kgに水1200ℓを加え、更に純粋培養酵母1kgを23℃で添加し、醗酵槽内で5日間第1次醗酵を行なわせた。

この間に品温は23℃から30℃に上昇し、第1次もろみ2116ℓが得られた。次にこれを第2次醗酵槽に移し替え、水3300ℓ及び別途製造した蒸し米2800kgを加えて第2次醗酵を行なわせた。なお、この蒸し米は精白米2000kgを水洗した後、水浸漬した浸漬米2560kgを連

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続蒸米機で30分間蒸し、次いで放冷機で23℃に放冷して製造した。

第2次醗酵槽内の醗酵開始時のもろみは容量7930ℓ、品温23℃であった。

一方、脱脂小麦胚芽粉末1000kgに水230ℓを撒水機により吹付けながら混合した後、5時間堆積した状態で放置し水分の均一化をはかった。得られた吸湿脱脂小麦胚芽粉末1230kgを破碎混合した後、連続蒸米機により30分間蒸きょうし、次いで放冷機により21℃に冷却して蒸し脱脂小麦胚芽粉末1350kgを得た。これを水1270ℓと共に第2次醗酵開始48時間後に添加（添加時のもろみ品温29℃、添加後のもろみ容量10415ℓ）した後、更に12日間醗酵を継続し、アルコール分15.4%の熟成もろみ10100ℓ（純アルコール換算1555ℓ）を得た。

(3) 蒸留工程

(2)の工程で得られた熟成もろみ10100ℓを7500ℓと2600ℓとに2分割し、7500ℓの方は3Kℓ容の減圧蒸留機を用いて2500

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2 宛 3 回に分け、機内圧力 5.0 mmHg、沸点 40～42℃で減圧蒸留を行ない、アルコール分 38.4%の留出液 2768ℓ（純アルコール 1063ℓ、蒸留歩合 92.0%）を得た。一方、2600ℓの熟成もろみは 3Kℓ容の単式蒸留機により常圧下沸点 90～100℃で蒸留し、アルコール分 39.2%の留出液 975ℓ（純アルコール 384ℓ、蒸留歩合 96.0%）を得た。次いで上記の減圧蒸留による留出液と常圧蒸留による留出液とを合して米焼酎 3743ℓを得、これを貯蔵熟成させて本発明の製品とした。

このようにして製造した本発明の米焼酎を脱脂小麦胚芽を添加しないで同様の方法で製造した通常の米焼酎とその品質について訓練された 20 名の官能検査パネルにより比較した結果は第 2 表の如くであった。

第 2 表

品質 区分	焦げ臭	油臭	刺激臭	総合判定
本発明品	0	0	1	20
対照品	9	8	6	0

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第 3 表

原料 組成	精白大麦	小麦胚芽粉
水分	14.0%	11.5%
粗蛋白質	8.8%	28.2%
粗脂肪	0.7%	9.9%
粗灰分	0.9%	5.7%
粗せんい	0.7%	2.1%
可溶性無窒素物	74.9%	42.6%
(全糖分)	(76.0%)	(37.8%)

次に製造工程を詳細に説明する。

(1) 製さく工程

回転ドラム式製麹機の回転ドラム内に精白大麦 1000kg を投入し、18℃で 3 時間水洗し水切りした浸漬麦 1300kg に蒸気吹込みを行ない、麦の温度が 100℃に上昇してから 50 分間蒸し、蒸し麦 1400kg を得た。次いで冷風を吹込んで 36℃に冷却した後、種麹 1kg を均一に散布し、

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備考：表中数値は焦げ臭、油臭、刺激臭については「有り」と指摘した人数、総合判定については「良い」と指摘した人数を示す。

第 2 表の結果からも明かなように脱脂小麦胚芽粉末を添加し、醱酵蒸留して得た本発明の米焼酎は焼酎特有の焦げ臭、油臭、および刺激臭が殆ど完全に除去され、総合判定において全てのパネルが香味豊かで調和のとれた米焼酎であると認定した。

実施例 2

本実施例では第 1 次および第 2 次原料として精白大麦を使用し、又第 3 次原料として小麦胚芽粉末を使用した場合について説明する。

なお、本実施例で使用した精白大麦および小麦胚芽の原料組成は第 3 表に示すとおりであり、小麦胚芽粉末は純度 90%以上の小麦胚芽を粉碎したものを使用した。なお、種麹および酵母は実施例 1 と同様のものを使用した。

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ドラムの回転により混ぜ合せ、36～38℃で 20 時間自動制御により通風回転しながら培養した。次いで培養終了後の麹を切返ししながら静置自動通風式製麹機内の棚に移し替え、36～37℃で 12 時間、更に 32～34℃で 8 時間計 20 時間自動制御により冷風を吹込みながら培養を継続した。培養終了後 20℃に冷却して水分 24.2%、酸度 6.8、糖化力 17.7 の麦麹 1250kg を得た。

(2) 熟成もろみの製造工程

(i) の工程で得られた麦麹 1250kg に水 1200ℓを加え、更に純粋培養酵母 1kg を 23℃で添加し、醱酵槽内で 5 日間第 1 次醱酵を行なわせた。

この間に品温は 23℃から 30℃に上昇し、第 1 次もろみ 2280ℓが得られた。次にこれを第 2 次醱酵槽に移し替え、水 3300ℓ及び別途製造した蒸し麦 2700kg を加えて第 2 次醱酵を行なわせた。なお、この蒸し麦は精白大麦 2000kg を水洗した後、水浸漬した浸漬大麦 2550kg を連続蒸米機で 30 分間蒸し、次いで放冷機で 23℃に放冷して製造した。

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第2次醱酵槽内の醱酵開始時のもろみは容量8010ℓ、品温23℃であった。

一方、小麦胚芽粉末1000kgに水230ℓを撒水機により吹付けながら混合した後5時間堆積した状態で放置し水分の均一化をはかった。得られた吸湿小麦胚芽粉末1230kgを破砕混合した後、連続蒸米機により100℃で30分間蒸きょうし、次いで放冷機により23℃に冷却して蒸し小麦胚芽粉末1350kgを得た。

これを水870ℓと共に第2次醱酵開始後48時間後に添加（添加時のもろみ品温26℃、添加後のもろみ容量10010ℓ）した後、更に10日間醱酵を継続し、アルコール分14.6%の熟成もろみ9800ℓ（純アルコール換算1431ℓ）を得た。

(3) 蒸留工程

(2)の工程で得られた熟成もろみ9800ℓを7500ℓと2300ℓとに2分割し、7500ℓの方は3Kℓ容の減圧蒸留機を用いて2500ℓ宛3回に分け、機内圧力50mmHg、沸点40～

42℃で減圧蒸留を行ない、アルコール分37.8%の留出液2648ℓ（純アルコール1001ℓ、蒸留歩合91.4%）を得た。一方、2300ℓの熟成もろみは3Kℓ容の単式蒸留機により常圧下沸点90～100℃で蒸留し、アルコール分38.4%の留出液838ℓ（純アルコール322ℓ、蒸留歩合95.8%）を得た。次いで上記の減圧蒸留による留出液と常圧蒸留による留出液とを合して麦焼酎3486ℓを得、これを貯蔵熟成させて本発明の製品とした。

このようにして製造した本発明の麦焼酎を小麦胚芽を添加しないで同様の方法で製造した通常の麦焼酎とその品質について訓練された20名の官能検査パネルにより比較した結果は第4表の如くであった。

第 4 表

品質 区分	焦げ臭	油臭	刺激臭	総合判定
本発明品	0	0	0	20
対照品	7	6	8	0

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20

備考：表中の数値は実施例1の第2表の場合と同様である。

第4表の結果からも明らかなように小麦胚芽粉末を添加し醱酵蒸留して得た本発明の麦焼酎は、麦焼酎特有の焦げ臭、油臭および刺激臭が殆ど完全に除去され、総合判定において全てのパネルが香味豊かで調和のとれた麦焼酎であると認定した。

特許出願人

合資会社篠崎商店

代理人

瀧 野 秀 雄





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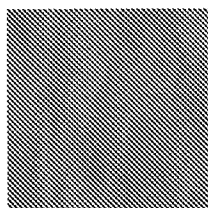
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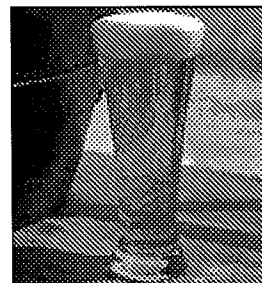
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JAPAN *Alcoholic Beverages*

Drinking in groups at bars, clubs and other nightspots after office hours is a popular Japanese pastime. Every city, town and village has an abundant number of drinking places that can be very crowded in evening hours. The biggest cities have sprawling entertainment districts crammed with bars, pubs, discos and nightclubs. At Japanese-style bars, a modest snack is often served with the first drink.



If you need to be budget-minded, avoid the very expensive hostess clubs unless someone else who is a regular customer is picking up the bill. You can also ask the concierge at your hotel to suggest nearby nightspots where prices are reasonable.

Beer: The most popular drink in Japan, beer is served draft from the tap or in bottles of lager. Bottles come in small (330ml), medium (500ml) and large (633ml) sizes. The bottles served at most pubs or bars are either small or medium. Draft beer comes in jugs or mugs at beer halls. During the summer season, open-air beer halls, some on the roofs of department stores, draw large numbers of beer lovers. The price for a bottle or mug of beer can vary somewhat by type of drinking spot, but is within a range of 400 to 900 Yen from small to large. This does not apply to the hostess clubs, where prices can be astronomical.

Sake: Japan's own native rice wine is the national drink. Sold in large bottles at liquor shops, it is not served by the bottle but in small ceramic flasks, from which it is poured into a small drinking cup. You can ask to have it served warm or cold. You can also state a preference for dry or sweet taste. Whichever type you like, sake's smooth and mellow taste makes it the ideal companion to Japanese cuisine. Sake can be deceptive, so drink it quite moderately in order to avoid a hangover.

Whiskey: Prices of domestic and imported whiskies tend to vary by type of

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drinking spot, but a single shot is usually 500-700 Yen for a domestic brand and 600-800 Yen for an import. Most Japanese people drink it mizuware -- with ice and mineral water. Expensive glacier ice, said to lend the most delicious taste to whiskey, is a current fad in Japan.

Wine: Both domestic and imported wines are served in restaurants that serve Occidental cuisines. A Chinese variant, lao chu, is served in Chinese restaurants. Upscale wine bars that feature good wines (and appropriate snack foods) have gained in popularity over the past few years.

Shochu: This distilled spirit made from sweet potatoes, wheat, sugar cane or other bases is similar to vodka. It can be drunk straight, on the rocks, or in cocktails. Once held in low esteem, it is now quite fashionable among young people. The most popular brands do not have the strong flavor that most people disliked. It's served at most Japanese-style bars at a reasonable price.

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JAPAN - TAXES ON ALCOHOLIC BEVERAGES

Report of the Panel

I. INTRODUCTION

1.1 On 21 June 1995, the European Communities ("the Community") requested consultations with Japan under Article XXII of the General Agreement on Tariffs and Trade 1994 ("GATT") concerning the internal taxes levied by Japan on certain alcoholic beverages pursuant to the Japan's Liquor Tax Law (WT/DS8/1). On 7 July 1995, pursuant to Article 4.11 of the Understanding on Rules and Procedures Governing the Settlement of Disputes ("DSU"), the United States (WT/DS8/2) and Canada (WT/DS8/3) requested to be joined in these consultations. Japan accepted these requests on 19 July 1995 (WT/DS8/4).

1.2 On 7 July 1995, Canada requested consultations with Japan under Article XXII of GATT 1994 concerning certain Japanese liquor taxation laws (WT/DS10/1). On 17 July 1995, pursuant to Article 4.11 of the DSU, the United States (WT/DS10/2) and the Community (WT/DS10/3) requested to be joined in these consultations. Japan accepted these requests on 19 July 1995 (WT/DS10/4).

1.3 On 7 July 1995, the United States requested consultations with Japan under Article XXIII of GATT 1994 regarding internal taxes imposed by Japan on certain alcoholic beverages pursuant to the Liquor Tax Law (WT/DS11/1).

1.4 On 20 July 1995, the Community, Canada and the United States jointly held consultations with Japan with a view to reaching a mutually satisfactory resolution of the matter, but they were unable to reach such a resolution. On 21 July 1995, the United States and Japan consulted under Article XXIII:1, but they did not reach a mutually acceptable resolution of the matter.

1.5 On 14 September 1995, pursuant to Article XXIII:2 of GATT 1994 and Article 6 of the DSU, the Community requested the Dispute Settlement Body ("DSB") to establish a panel with standard terms of reference (WT/DS8/5). The Community claimed that:

"a) Japan had acted inconsistently with Article III:2, first sentence, of GATT 1994 by applying a higher tax rate on the category of 'spirits' than on each of the two sub-categories of shochu, thereby nullifying or impairing the benefits accrued to the European Communities under GATT 1994; and that

b) Japan has acted inconsistently with Article III:2, second sentence, of GATT 1994 by applying a higher tax rate on the category of 'whisky/brandy'¹ and on the category of 'liqueurs' than on each of the two sub-categories of shochu, thereby nullifying or impairing the benefits accrued to the European Communities under GATT 1994.

In the event that the liquors falling within the category of 'spirits' were found by the Panel not to be 'like products' to shochu within the meaning of the first sentence of Article III:2, the [Community] further claimed that:

c) Japan has acted inconsistently with Article III:2, second sentence, of

¹In the present Panel report the use of the term "whisky" includes also the term "whiskey" as used in the case of Irish whiskey and Tennessee whiskey.

GATT 1994 by applying a higher tax rate on the category of 'spirits' than on each of the two sub-categories of shochu, thereby nullifying or impairing the benefits accrued to the European Communities under GATT 1994".

1.6 On 14 September 1995, pursuant to Article XXIII of GATT 1994 and Articles 4 and 6 of the DSU, Canada requested the DSB to establish a panel with standard terms of reference (WT/DS10/5). Canada claimed that:

"... the higher rates of taxation on imported alcoholic beverages including whiskies, brandies, other distilled alcoholic beverages and liqueurs than on Japanese shochu imposed pursuant to the Japanese Liquor Tax Law are:

- a) inconsistent with Article III:1 and III:2 of GATT 1994;
- b) nullifying and impairing the benefits accruing to Canada pursuant to the WTO".

1.7 On 14 September 1995, pursuant to Article XXIII:2 of GATT 1994 and Articles 4 and 6 of the DSU, the United States requested the DSB to establish a panel with standard terms of reference (WT/DS11/2). The United States claimed that:

"... the internal taxes imposed by Japan [pursuant to the Liquor Tax Law] on these beverages, and in particular the preferential tax treatment accorded to shochu, are inconsistent with Article III of GATT 1994, and otherwise nullify and impair benefits accruing to the United States under the GATT 1994".

1.8 At its meeting of 27 September 1995, pursuant to the first request of the three complaining parties and with Japan's acceptance, the DSB established a single panel with the mandate to examine the requests of the Community, Canada and the United States, all of which related to the same matter, in accordance with Article 9 of the DSU (WT/DSB/M/7).

1.9 During the 27 September 1995 meeting of the DSB, Norway reserved its right as a third party to the present dispute. However, on 7 November 1995, Norway informed the Panel of the withdrawal of its request to participate as a third party in the dispute (WT/DS8/7, DS10/7 and DS11/4).

1.10 At the same meeting of the DSB on 27 September 1995, the parties agreed that the Panel should have standard terms of reference as follows:

"To examine, in the light of the relevant provisions of the covered agreements cited by the EC, Canada and US in documents WT/DS8/5, WT/DS10/5, WT/DS11/2, the matters referred to the DSB by the EC, Canada and the United States in those documents and to make such findings as will assist the DSB in making the recommendations or in giving the rulings provided for in those agreements".

1.11 On 30 October 1995, the Panel was constituted with the following composition:

Chairman: Mr. Hardeep Puri
Panelists: Mr. Luzius Wasescha
Mr. Hugh McPhail

II. FACTUAL ASPECTS

A. The Japanese Liquor Tax Law

2.1 This dispute concerns the Japanese Liquor Tax Law (Shuzeiho), Law No.6 of 1953 as amended ("Liquor Tax Law"), which lays down a system of internal taxes applicable to all liquors, which are defined as domestically produced or imported beverages having an alcohol content of not less than one degree and which are intended for consumption in Japan.

2.2 The Liquor Tax Law currently classifies the various types of alcoholic beverages into ten categories and additional sub-categories: sake, sake compound, shochu (group A, group B), mirin, beer, wine (wine, sweet wine), whisky/brandy, spirits, liqueurs, miscellaneous (various sub-categories).

1. Terminology and Definitions

The Liquor Tax Law defines liquors involved in the present disputes - shochu, whisky/brandy, spirits and liqueurs - as follows:²

"Article 3

Paragraph 5 'Shochu' shall mean liquors produced by the distillation of alcohol containing substances. Included in this definition are those produced by adding water, sugar or other substances stipulated in government ordinances to the above-mentioned liquors. They must have an alcoholic strength of 45% vol or less. The liquor must be less than 36% vol in case distilled by a 'continuous still', the definition of which is as follows: a machine that removes fusel oil, aldehyde and other impurities during the process of continuous distillation. The definition of the type of sugar which can be added is given by government ordinances. In case produced by adding substances other than water, the extract of the product ought to be less than 2g/100 ml.

Note that those enumerated below from (a) through (d) do not fall under the definition of 'shochu'.

(a) Liquors produced in whole or in part from malted cereals or fruit (including dried fruit or boiled-down or concentrated must, but excluding dates or other fruit as stipulated in government ordinances. The same shall apply hereafter).

²These definitions (translations from the Liquor Tax Law) were submitted by Japan.

(b) Liquors produced by filtering it through white birch charcoal or other substances specified in government ordinances.

(c) Liquors produced in whole or in part from saccharized substances (e.g. molasses, sugar, syrup and honey; excluding sugar as defined by government ordinances) and by the distillation at less than 95% vol.

(d) Liquors produced by flavouring alcohol by way of steeping ingredients of other substances during distillation.

Paragraph 9 'Whisky/Brandy' shall mean the following liquors on condition that those listed in (a), (b) and (d) be excluded in case covered by (b) through (d) of Paragraph 5:

(a) Liquors produced by distillation of alcohol containing substance derived by first saccharifying malted cereals and water and then fermenting them. The above- mentioned liquors must be distilled at less than 95% vol.

(b) Liquors produced by the distillation of alcohol containing substance derived by first saccharifying unmalted cereals with malted cereals and water and then fermenting them. The above mentioned liquors must be distilled at less than 95% vol.

(c) Liquors produced by adding alcohol, spirits, flavouring substance, colorants, or water to liquors mentioned in above (a) and (b). Excluded from this provision are those in which the aggregate of the alcoholic contents of the liquors mentioned in above (a) and (b) is less than ten hundredth (10/100) of those of the liquors resulted from the addition of the above enumerated substances.

(d) Liquors produced by the distillation of alcohol containing substance obtained by the fermentation of fruit / fruit and water, or by distillation of wine (including wine lees). The above mentioned liquors must be distilled at less than 95% vol.

(e) Liquors produced by adding alcohol, spirits, flavouring substance, colorants or water to liquors mentioned in above (d). Excluded from this provision are those in which the aggregate of the alcoholic contents of the liquors mentioned in above (d) is less than ten hundredth (10/100) of those of the liquors resulted from the addition of above enumerated substances.

Paragraph 10 'Spirits' shall mean liquors other than those as listed from Paragraphs 3 to 9, the extract of which must be less than 2g/100ml. 'Spirits' does not include sparkling liquors made in part from malt other than those produced by the distillation of alcohol-containing substances made partly from malt. The same

exclusion shall apply in the next paragraph.

Paragraph 11 'Liqueurs' shall mean liquors made from liquors and other substances such as saccharide (including liquors, but excluding those as stipulated in the government ordinances), the extract of which is not less than 2g/100ml (excluding liquors as listed from Paragraphs 3 to 9), and sparkling liquors made in part from malt, as well as the powdered one which can be dissolved to make a beverage with an alcoholic strength of not less than 1% vol.

Article 4:

The liquors of the categories as listed in the left column of the following table shall be split into the sub-categories described in the mid-column thereof, and the definition of each sub-category shall be shown at the right-column thereof."

Category	Sub-Category	Definition
Shochu	Shochu A	Shochu which are distilled with a continuous still
	Shochu B	Shochu other than Shochu A

2. Tax Rates

2.3 Pursuant to the Liquor Tax Law, liquors are taxed at the wholesale level. In the case of liquors made in Japan, the tax liability accrues at the time of shipment from the factory, and in the case of imported liquors, at the withdrawal from a customs-bonded area. As explained above, the Liquor Tax Law divides all liquors into ten categories, some of which are divided into sub-categories. Different tax rates are applied to each of the various tax categories and sub-categories defined by the Liquor Tax Law. The rates are expressed as a specific amount in Japanese Yen ("¥") per litre of beverage. For each category or sub-category, the Liquor Tax Law lays down a reference alcohol content per litre of beverage and the corresponding reference tax rate. For whisky, the reference rate uses an alcohol strength of 40 per cent; for spirits the alcohol strength is 37 per cent; for liqueurs the alcohol strength is 12 per cent; for both shochu sub-categories, an alcohol strength of 25 per cent is used. As a result, the liquors covered by the present dispute are subject to the following tax rates:

Shochu A

Alcoholic Strength	Tax Rate (per 1 kilolitre)
(1) 25 to 26 degrees	¥155,700
(2) 26 to 31 degrees	¥155,700 plus ¥9,540 for each degree above 25

(3) 31 degrees and above	¥203,400 plus ¥26,230 for each degree above 30
(4) 21 to 25 degrees	¥155,700 minus ¥9,540 for each degree below 25 (fractions are rounded up to 1 degree)
(5) below 21 degrees	¥108,000

Shochu B

Alcoholic Strength	Tax Rate (per 1 kilolitre)
(1) 25 to 26 degrees	¥102,100
(2) 26 to 31 degrees	¥102,100 plus ¥6,580 for each degree above 25
(3) 31 degrees and above	¥135,000 plus ¥14,910 for each degree above 30
(4) 21 to 25 degrees	¥102,100 minus ¥6,580 for each degree less than 25 (fractions are rounded up to 1 degree)
(5) below 21 degrees	¥69,200

Whisky

Alcoholic Strength	Tax Rate (per 1 kilolitre)
(1) 40 to 41 degrees	¥982,300
(2) 41 degrees and above	¥982,300 plus ¥24,560 for every degree above 40
(3) 38 to 40 degrees	¥982,300 minus ¥24,560 for each degree below 40 (fractions are rounded up to 1 degree)
(4) below 38 degrees	¥908,620

Spirits

Alcoholic Strength	Tax Rate (per 1 kilolitre)
(1) below 38 degrees	¥367,300
(2) 38 degrees and above	¥367,300 plus ¥9,930 for each degree above 37

Liqueurs

Alcoholic Strength	Tax Rate (per 1 kilolitre)
(1) below 13 degrees	¥98,600
(2) 13 degrees and above	¥98,600 plus ¥8,220 for each degree over 12

2.4 A special formula is applied to determine the rate applicable to beverages having an alcohol content below 13 per cent or, in the case of "liqueurs", below 12 per cent (as a general rule, pre-mixes combining a liquor with water or with other non-alcoholic beverages). This formula yields the result that the tax rate per litre of pure alcohol levied on these beverages is the same as the tax per litre of pure alcohol that would be borne by a liquor of the same category at the legal standard strength.

B. The 1987 Panel Report on Japan - Customs Duties, Taxes and Labelling Practices on Imported Wines and Alcoholic Beverages ("1987 Panel Report")

2.5 In 1986, the Community requested consultations with Japan in respect of Japan's Liquor Tax Law, as it then existed. The consultations failed to resolve the matter and in 1987 a panel was established to consider, among others, the Community's claim that the Liquor Tax Law violated Article III:2.

2.6 As of 1987, the Liquor Tax Law divided the whisky/brandy category into whisky and brandy, and subdivided whisky into three grades, i.e., Special Grade, First Grade and Second Grade. The category shochu was sub-divided into Groups A and B. Specific tax rates were provided for each category and sub-category of alcoholic beverages. In addition, an *ad valorem* tax was applicable to *inter alia*, Special, First and Second Grade whiskies where the price exceeded a certain threshold. This tax was not applicable to either shochu group.

2.7 The 1987 Panel Report concluded that some aspects of the Liquor Tax Law were inconsistent with Article III:2, first and second sentences, and suggested that the CONTRACTING PARTIES recommend that Japan bring its taxes on whiskies, brandies, other distilled spirits (such as gin and vodka), liqueurs, still wines and sparkling wines into conformity with its obligations under the General Agreement. In particular, the Panel reached the following conclusions:

"5.5 ... The Panel concluded that the ordinary meaning of Article III:2 in its context and in the light of its object and purpose supported the past GATT practice of examining the conformity of internal taxes with Article III:2 by determining, firstly, whether the taxed imported and domestic products are 'like' or 'directly competitive or substitutable' and, secondly whether the taxation is discriminatory (first sentence) or protective (second sentence of Article III:2). The Panel decided to proceed accordingly also in this case.

5.6 ... The Panel found that the following alcoholic beverages should be considered as "like products" in terms of Article III:2 in view of their similar properties, end-uses and usually uniform classification in tariff nomenclatures: imported and Japanese-made *gin*; imported and Japanese-made *vodka*; imported and Japanese-made whisky (including all grades classified as 'whisky' in the Japanese Liquor Tax Law) and 'spirits similar to whisky in colour, flavour and other properties' as described in the Japanese Liquor Tax Law; imported and Japanese-made *grape brandy* (including all grades classified as 'brandy' in the Japanese Liquor Tax Law); imported and Japanese-made *fruit brandy* (including all grades classified as 'brandy' in the Japanese Liquor Tax Law); imported and Japanese-made 'classic' liqueurs (not including, for instance, medicinal liqueurs); imported and Japanese-made unsweetened *still wine*; imported and Japanese-made *sparkling wines*.

5.7 The Panel did not exclude that also other alcoholic beverages could be considered as 'like' products. Thus, even though the Panel was of the view that the 'likeness' of products must be examined taking into account not only objective criteria (such as composition and manufacturing processes of products) but also the more subjective consumers' viewpoint (such as consumption and use by consumers), the Panel agreed with the arguments submitted to it by the European Communities, Finland and the United States that Japanese shochu (Group A) and vodka could be considered as 'like' products in terms of Article III:2 because they were both white/clean spirits, made of similar raw materials, and their end-uses were virtually identical (either as straight 'schnaps' type of drinks or in various mixtures). Since consumer habits are variable in time and space and the aim of Article III:2 of ensuring neutrality of internal taxation as regards competition between imported and domestic like products could not be achieved if differential taxes could be used to crystallize consumer preferences for traditional domestic products, the Panel found that the traditional Japanese consumer habits with regard to shochu provided no reason for not considering vodka to be a "like" product. The Panel decided not to examine the 'likeness' of alcoholic beverages beyond the requests specified in the complaint by the European Communities (see ...). The Panel felt justified in doing so also for the following reasons: Alcoholic drinks might be drunk straight, with water, or as mixes. Even if imported alcoholic beverages (e.g. vodka) were not considered to be 'like' to Japanese alcoholic beverages (e.g. shochu Group A), the flexibility in the use of alcoholic drinks and their common characteristics often offered an alternative choice for consumers leading to a competitive relationship. In the view of the Panel there existed - even if not necessarily in respect of all the economic uses to which the product may be put - direct competition or substitutability among the various distilled liquors, among various liqueurs, among unsweetened and sweetened wines, and among sparkling wines. The increasing imports of 'Western-style' alcoholic beverages into Japan bore witness to this lasting competitive relationship and to the potential products substitution through trade among various alcoholic beverages.

Since consumer habits *vis-à-vis* these products varied in response to their respective prices, their availability through trade and their other competitive inter-relationships, the Panel concluded that the following alcoholic beverages could be considered to be '*directly competitive or substitutable products*' in terms of Article III:2, second sentence:

- imported and Japanese-made distilled liquors, including all grades of whiskies/brandies, vodka and shochu Groups A and B, among each other;
- imported and Japanese-made liqueurs among each other;
- imported and Japanese-made unsweetened and sweetened wines among each other; and
- imported and Japanese-made sparkling wines among each other.

...

5.9 a) ... The Panel concluded ... that (special and first grade) whiskies/brandies imported from the EEC were subject to internal Japanese taxes 'in excess of those applied ... to like domestic products' (i.e. first and second grade whiskies/brandies) in the sense of Article III:2, first sentence.

b) ... The Panel concluded ... that ... the imposition of *ad valorem* taxes on wines, spirits and liqueurs imported from the EEC, which are considerably higher than the specific taxes on 'like' domestic wines, spirits and liqueurs, was inconsistent with Article III:2, first sentence.

...

d) ... The Panel concluded that this imposition of higher taxes on 'classic' liqueurs and sparkling wines with higher raw material content was inconsistent with Article III:2, first sentence.

...

5.11 The Panel recalled its findings that distilled liquors, including all grades of shochu types A and B, were 'directly competitive or substitutable products' in terms of the interpretative note to Article III:2 (see above paragraph 5.7). The Panel noted that shochu was not subject to *ad valorem* taxes and that the specific tax rates on shochu were many times lower than the specific tax rates on whiskies, brandies and other spirits. The Panel noted that, whereas under the first sentence of Article III:2 the tax on the imported product and the tax on the like domestic product had to be equal in effect, Article III:1 and 2, second sentence, prohibited only the application of internal taxes to imported or

domestic products in a manner 'so as to afford protection to domestic production'. The Panel was of the view that also small tax differences could influence the competitive relationship between directly competing distilled liquors, but the existence of protective taxation could be established only in the light of the particular circumstances of each case and there could be a *de minimis* level below which a tax difference ceased to have the protective effect prohibited by Article III:2, second sentence. The Panel found that the following factors were sufficient evidence of fiscal distortions of the competitive relationship between imported distilled liquors and domestic shochu affording protection to the domestic production of shochu:

- the considerably lower specific tax rates on shochu than on imported whiskies, brandies and other spirits ... ;
- the imposition of high *ad valorem* taxes on imported whiskies, brandies and other spirits and the absence of *ad valorem* taxes on shochu;
- the fact that shochu was almost exclusively produced in Japan and that the lower taxation of shochu did 'afford protection to domestic production' (Article III:1) rather than to the production of a product produced in many countries (say, butter) in relation to another product (say, oleomargarine, as in the example referred to by Japan in paragraph 3.11 above);
- the mutual substitutability of these distilled liquors, as illustrated by the increasing imports into Japan of 'Western-style' distilled liquors and by the consumer use of shochu blended in various proportions with whisky, brandy or other drinks.

Since it has been recognized in GATT practice that Article III:2 protects expectations on the competitive relationship between imported and domestic products rather than expectations on trade volumes (see L/6175, paragraph 5.1.9), the Panel did not consider it necessary to examine the quantitative trade effects of this considerably different taxation for its conclusion that the application of considerably lower internal taxes by Japan on shochu than on other directly competitive or substitutable distilled liquors had trade-distorting effects affording protection to domestic production of shochu contrary to Article III:1 and 2, second sentence.

...

5.13 ... The Panel noted the Japanese submission that, for instance, the grading system for whisky was 'based on the circumstances of production and consumption of whiskies in Japan', and that generally 'taxes on liquors are levied according to the tax-bearing ability on the part of consumers of each category of liquor'. The Panel was of the view that the use of product and tax

differentiations with the view of maintaining or promoting certain production and consumption patterns could easily distort price-competition among like or directly competitive products by creating price differences and price-related consumer preferences which would not exist in case of non-discriminatory internal taxation consistent with Article III:2. The Panel noted that the General Agreement did not make provision for such a far-reaching exception to Article III:2, and that the concept of "taxation according to tax-bearing ability of prospective consumers" of a product did not offer an objective criterion because it relied on necessarily subjective assumptions about future competition and inevitably uncertain consumer responses. The Panel was of the view that a national policy of 'taxation according to tax-bearing ability' did not necessitate discriminatory or protective taxation of imported products and could be pursued by each contracting party in many ways in compliance with Article III:2. A national policy of promoting the domestic production of certain goods could likewise be pursued in conformity with the General Agreement (*e.g.*, by means of production subsidies) without discriminatory or protective taxation of imported goods. The Panel concluded therefore from the text, system and objectives of the General Agreement that, even though each contracting party retained broad freedom as to its internal tax policy also in respect of its internal taxation of goods, the General Agreement did not provide for the possibility of justifying discriminatory or protective taxes inconsistent with Article III:2 on the ground that they had been introduced for the purpose of 'taxation according to the tax-bearing ability' of domestic consumers of imported and directly competitive domestic liquors."³

2.8 On 2 February 1989, the Government of Japan informed the CONTRACTING PARTIES that the *ad valorem* tax and the grading system had been abolished, resulting in a single rate for all grades of whisky/brandies, and that the existing differences in taxation of whisky/brandies and shochu had been considerably reduced by decreasing the specific tax rate for whisky/brandies and raising that on shochu. According to Japan, these changes had been instituted "with a view to implementing the recommendations adopted by the GATT Council on 10 November 1987 on the basis of the panel report on the Japanese customs duties, taxes and labelling practices on imported wines and alcoholic beverages".⁴ Also in 1989, an interim measure was introduced under the Special Taxation Measures Law to ease the adjustment pain for small scale manufacturers of shochu up to an annual ceiling of 1,300 kl. Under the measure which was to expire within 5 years, small producers are eligible for a 30 per cent reduction in the liquor tax they pay for the first 200 kl of the products they produce. On 1 May 1994, the Liquor Tax Law was further amended to raise tax rates on shochu and on spirits, while tax rates on whisky remained unchanged. The application of the interim measure under the Special Taxation Measures Law was also extended by 3 years at the same time.

³Panel Report on "Japan - Customs Duties, Taxes and Labelling Practices on Imported Wines and Alcoholic Beverages", adopted on 10 November 1987, BISD 34S/83.

⁴Follow up on the panel report on "Japan - Customs Duties, Taxes and Labelling Practices on Imported Wines and Alcoholic Beverages", communication by Japan dated 27 January 1989, circulated on 2 February 1989, GATT Document L/6465.

III. CLAIMS OF THE PARTIES

The three complaining parties, namely the Community, Canada and the United States submitted the following claims against Japan:

3.1 The **Community** claimed that since “spirits” (in particular vodka, gin, (white) rum, genever) are like products to the two categories of shochu, the Liquor Tax Law violates GATT Article III:2, first sentence, by applying a higher tax rate on the category of spirits than on each of the two like products, namely, the two sub-categories of shochu. In the alternative, in the event that all or some of the liquors falling within the category of spirits (mentioned above) were found by the Panel not to be like products to shochu within the meaning of the first sentence of Article III:2, the Community claimed that the Liquor Tax Law violates Article III:2, second sentence, by applying a higher tax rate on all or some of the liquors falling within the category of spirits than on each of the two directly competitive and substitutable products, the two sub-categories of shochu. The Community further claimed that since whisky/brandy and liqueurs are also “directly competitive and substitutable products” to both categories of “shochu”, the Liquor Tax Law violates Article III:2, second sentence of GATT 1994, by applying a higher tax rate on the categories of whisky/brandy and liqueurs than on each of the two sub-categories of shochu.

3.2 **Canada** claimed that whisky is a “directly competitive and substitutable product” to both categories of “shochu”, that by applying a higher tax rate on the categories of whisky/brandy than on each of the two sub-categories of shochu, the Liquor Tax Law distorts the relative prices of whisky and shochu, that in so doing the Liquor Tax Law distorts consumer choice between these categories of alcoholic beverages and thus distorts their competitive relationship. Canada claimed that consequently, the Liquor Tax Law is inconsistent with Article III:2, second sentence, of GATT 1994.

3.3 The **United States** claimed that the Japanese tax system applicable to distilled spirits has been devised so as to afford protection to production of shochu. For this reason and because “white spirits” and “brown spirits” have similar physical characteristics and end-uses, the United States claimed that “white spirits” and “brown spirits” are “like products” in the sense of the first sentence of Article III:2, and therefore the difference in tax treatment between shochu and vodka, rum, gin, other “white spirits”, whisky/brandy and other “brown spirits” is inconsistent with Article III:2, first sentence. If the Panel were not able to make such a finding, the United States requested, in the alternative, that the Panel find that all “white spirits” are “like products” in terms of Article III:2 first sentence, and that all distilled spirits are “directly competitive and substitutable” in terms of Article III:2, second sentence for the same reasons. The United States concluded that irrespective of the legal analysis the Panel adopts, the Liquor Tax Law should be found to be inconsistent with Article III:2.

3.4 The defending party, **Japan**, responded to the claims from the three complaining parties. Japan claimed that the purpose of the tax classification under the Liquor Tax Law is not to afford protection and does not have the effect of protecting domestic production. Therefore, Japan argued that the Liquor Tax Law does not violate Article III:2. According to Japan, spirits, whisky/brandy and liqueurs are not “like products” to either category of shochu,

within the meaning of Article III:2, first sentence, nor are they “directly competitive and substitutable products” to shochu, within the meaning of Article III:2, second sentence. Consequently, Japan claimed that the Liquor Tax Law cannot violate Article III:2.

[Parties' arguments in Section IV deleted from this version]

V. INTERIM REVIEW

5.1 On 28 May 1996, Japan, United States and Canada requested the Panel to review, in accordance with Article 15.2 of the DSU, precise aspects of the interim report that had been issued to the parties on 20 May 1996; Japan and the United States requested the Panel to hold a meeting for that purpose. The Panel met with the parties on 6 June 1996 to hear their arguments concerning the interim report. The Panel carefully reviewed the arguments presented by the parties.

5.2 In approaching the interim review stage, the Panel drew guidance from Article 15.2 DSU which states that "a party may submit a written request for the panel to review precise aspects of the interim report prior to circulation of the final report to the Members". Whilst the Panel was willing to approach the interim review stage with the broadest possible interpretation of Article 15.2 DSU, it was of the view that the purpose of the review meeting is not to provide the parties with an opportunity to introduce new legal issues and evidence, or to enter into a debate with the Panel. In the view of the Panel, the purpose of the interim review stage is to consider specific and particular aspects of the interim report. Consequently, the Panel addressed the entire range of such arguments presented by the parties which it considered to be sufficiently specific and detailed.

5.3 The United States submitted to the Panel and the parties at the review meeting copies of press reports relating to the interim report. After a brief discussion on the need to maintain confidentiality, the Panel appealed and all parties to the dispute agreed, on the utmost importance of maintaining confidentiality so as to preserve the credibility and integrity of the dispute settlement process.

5.4 With respect to the legal status of adopted panel reports, the United States argued that nothing in GATT 1994 modified the status they had enjoyed under GATT 1947 and that they thus should not be considered as subsequent practice in the sense of Article 31 of the Vienna Convention on the Law of the Treaties (VCLT). The Panel drew the attention of the United States to paragraph 6.10 of the report. In order to clarify its position, the Panel introduced some drafting modifications in the panel report.

5.5 In respect of the discussion of Article III:2 in the interim report, both Japan and the United States argued that the Panel should not have rejected their approach according to which the benchmark to evaluate whether domestic legislation is in breach of the obligations contained in Article III:2 is the aim-and-effect test that they felt had its basis in the phrase "so as to afford protection" in Article III:1. The Panel took note of the arguments of the United States and Japan which had been the subject of detailed and serious considerations throughout its deliberations, but for the reasons spelled out in paragraph 6.11ff. the Panel decided not to take any further action in this respect.

5.6 Japan argued that with respect to Article III:2, the Panel's overall approach would lead to findings of violations of Article III:2 by virtually all tax distinctions. The Panel could not subscribe to Japan's position. The Panel reiterated that its task was circumscribed by its terms of reference which required it to review the consistency of the Japanese taxation system with respect to certain alcoholic beverages *vis-à-vis* Japan's obligation under Article III:2. The Panel consequently limited its conclusions to the subject-matter circumscribed by its terms of reference.

5.7 In respect of the Panel's discussion on "like products", Japan argued that under the Harmonized System (HS) nomenclature shochu and vodka no longer appear under the same heading. The Panel took note of the statement and, whilst not sharing the legal conclusion by Japan, the Panel proceeded to make certain drafting changes in paragraph 6.22 in order to clarify its point of view.

5.8 Japan argued that the tax/price ratio for domestic shochu A is higher than that for imported vodka, and, consequently, shochu A should be excluded from the Panel's finding in paragraph 6.27 that Japan violated its obligation under Article III:2, first sentence. The Panel did not share this opinion but felt that it should further explain its position. The additional discussion by the Panel of this point is reflected in paragraph 6.25.

5.9 In respect of the distinction between "like products" on the one hand, and, "directly competitive or substitutable products" on the other, the United States argued that the Panel did not offer any clear distinguishing criteria between the two categories. In response, the Panel expanded its analysis of this distinction in paragraph 6.23.

5.10 The United States argued that the Panel did not offer any useful criteria concerning the interpretation of the term "dissimilar taxation" that the Panel uses in the report. More particularly, the United States argued that the Interpretative Note ad Article III, second paragraph, contained language that could be considered as a necessary condition in order to establish a violation of Article III:2, second sentence, but that it was questionable whether the same language could be considered as sufficient for the same purpose. The Panel added language in paragraph 6.33 to address this argument.

5.11 Japan argued that the complainants did not offer any evidence on liqueurs and that, consequently, liqueurs should be excluded from the findings in paragraph 6.33 that Japan violated its obligations under Article III:2, second sentence. The Panel was not persuaded by the arguments advanced by Japan but added language in paragraph 6.28 in order to clarify the Panel's position.

5.12 The United States argued that the Panel's analysis of the phrase "directly competitive or substitutable products" established a requirement to show adverse trade effects as a condition for establishing a violation of Article III. The Panel added language in paragraph 6.33 to make it clear that it follows the reasoning and the conclusions of previous panel reports on this issue and that the Panel felt that there is no need to examine trade effects in the context of Article III, since Article III deals with conditions of competition. A factual determination of whether two products are directly competitive or substitutable is a necessary precondition in order to apply

the legal test of dissimilar taxation. In the Panel's view, this determination takes place in the marketplace and does not mean at all that Article III has been made subject to an effects test.

5.13 Japan requested the Panel to suggest specific ways to bring its measures into compliance with its obligations under Article III:2. The Panel recalled its recommendation in paragraph 7.2, which is consistent with Article 19 DSU, that Japan bring its measures into compliance with the provisions of Article III:2.

5.14 With regard to some other issues raised by the United States, the Panel recalled that the only panel report that contains an analysis of "like products" similar to that of 1992 Malt Beverages is an unadopted panel report that had followed the same reasoning. The Panel also recalled its findings in paragraph 6.21 where it stated that a product's description in a tariff binding is an "important criterion for confirming likeness" and that "this does not mean that the determination of whether products are 'like' should be based exclusively on the definition of products for tariff bindings".

5.15 Japan, the United States and Canada made a number of suggestions concerning language changes that the Panel accepted and introduced in its final report.

5.16 In respect of the interim report's descriptive section, Japan suggested further changes which the Panel took into account in re-examining that part of the report. The Panel revised the descriptive section of the final report where it accepted the need for these changes.

VI. FINDINGS

A. Claims of the Parties

6.1 The Community requests the Panel to find that vodka, gin, (white) rum, genever and shochu are like products and that Japan, by taxing the other four products in excess of shochu violates Article III:2, first sentence. In the event that the Panel does not find the aforementioned products to be like products, the Community requests the Panel to find that they are directly competitive and substitutable products and that Japan, by taxing vodka, gin, (white) rum and genever higher than shochu has failed to observe its obligations under Article III:2, second sentence. The Community further requests the Panel to find that whisky, brandy, liqueurs and shochu are directly competitive and substitutable products and that Japan, by taxing the first three products higher than the latter, violates its obligations under Article III:2, second sentence.

6.2 Canada requests the Panel to find that whisky, brandy, other distilled alcoholic beverages, and liqueurs on the one hand, and shochu, on the other, are directly competitive and substitutable products and that Japan by taxing the former higher than the latter violates its obligations under Article III:2, second sentence.

6.3 The United States requests the Panel to find that white and brown spirits are like products in the sense of Article III:2, first sentence, and, therefore, that the difference in tax

treatment by Japan between shochu and vodka, gin, rum and other white spirits, as well as whisky, brandy and other brown spirits, is inconsistent with Article III:2, first sentence. If the Panel is not able to make such a finding, the United States request, in the alternative, that the Panel find that all white spirits are like products in terms of Article III:2, first sentence, and that all distilled spirits are directly competitive and substitutable products in terms of Article III:2, second sentence. In the latter case, the United States requests the Panel to find that the difference in taxation by Japan under its Liquor Tax Law in favour of shochu materially alters the conditions of competition between shochu and other distilled spirits and that Japan thus violates its obligations under Article III:2, second sentence. The United States further claims that the small-volume producer exemption from excise taxes provided under Japan's Taxation Special Measures Law is limited to Japanese producers and that Japan thus fails to respect its obligations under Article III:2, first sentence.

6.4 Japan requests the Panel to find that its taxation system does not violate Article III. Japan claims that the purpose of the tax classification under the Liquor Tax Law is not to afford protection and does not have the effect of protecting domestic production. Japan further argues that spirits, whisky/brandy and liqueurs are not "like products" to either category of shochu, within the meaning of Article III:2, first sentence, nor are they "directly competitive or substitutable products" to shochu, within the meaning of Article III:2, second sentence. Finally, Japan requests the Panel to reject the claim by the United States with respect to its Taxation Special Measures Law because it lies outside the terms of reference of the Panel.

B. Preliminary Finding

6.5 The Panel first turned to the United States' claim with respect to the Japanese Taxation Special Measures Law. The Panel noted that Japan argued that the claim of the United States is not part of the terms of reference of the Panel. The Panel further noted that its terms of reference, following from Articles 7 and 11 DSU, are circumscribed in WT/DS8/6, WT/DS10/6 and WT/DS11/3. The Panel noted that no mention of the Japanese Taxation Special Measures Law is included in WT/DS8/6, WT/DS10/6 and WT/DS11/3. The Panel concluded that its terms of reference do not permit it to entertain the claim of the United States with respect to the Japanese Taxation Special Measures Law and it proceeded, therefore, to examine the other claims.

C. Main Findings

6.6 The Panel noted that the complainants are essentially claiming that the Japanese Liquor Tax Law is inconsistent with GATT Article III:2 (hereinafter "Article III:2"). Article III:2 reads:

"The products of the territory of any contracting party imported into the territory of any other contracting party shall not be subject, directly or indirectly, to internal taxes or other internal charges of any kind in excess of those applied, directly or indirectly, to like domestic products. Moreover, no contracting party

shall otherwise apply internal taxes or other internal charges to imported or domestic products in a manner contrary to the principles set forth in paragraph 1*⁷⁹.

GATT Article III:1 (hereinafter "Article III:1), which is referred to in Article III:2, reads:

"The contracting parties recognize that internal taxes and other internal charges, and laws, regulations and requirements affecting the internal sale, offering for sale, purchase, transportation, distribution or use of products, and internal quantitative regulations requiring the mixture, processing or use of products in specified amounts or proportions, should not be applied to imported or domestic products so as to afford protection to domestic production*⁸⁰.

In addition, the Panel noted that there is an Interpretative Note ad Article III, Paragraph 2, which is relevant to this case. The Note reads:

"A tax conforming to the requirements of the first sentence of paragraph 2 would be considered to be inconsistent with the provisions of the second sentence only in cases where competition was involved between, on the one hand, the taxed product and, on the other hand, a directly competitive or substitutable product which was not similarly taxed".

The Panel noted that the Interpretative Note ad Article III, Paragraph 2, is contained in Annex I to GATT 1994. The Panel noted, in this respect, that Article XXXIV of GATT 1994 provides:

"The annexes to this Agreement are hereby made an integral part of this Agreement".

1. General Principles of Interpretation

6.7 The Panel understood the dispute among the parties over the appropriate legal analysis to be applied in this case required it to interpret the wording of Article III:2. The Panel recalled that Article 3:2 DSU states:

"... The Members recognize that [the WTO dispute settlement system] serves to preserve the rights and obligations of Members under the covered agreements, and to clarify the existing provisions of those agreements in accordance with customary rules of interpretation of public international law".

The Panel noted that the "customary rules of interpretation of public international law" are those incorporated in the Vienna Convention on the Law of Treaties (VCLT). GATT panels

⁷⁹The asterisk in Article III:2 refers to the Interpretative Note ad Article III, Paragraph 2 that is quoted infra.

⁸⁰The asterisk in Article III:1 refers to the Interpretative Note ad Article III, Paragraph 1 that is not quoted because it refers to an unrelated issue.

have previously interpreted the GATT in accordance with the VCLT.⁸¹ The Panel noted that Article 3:2 DSU in fact codifies this previously-established practice. The Panel also noted that there is no disagreement among the parties to proceed on this basis.

6.8 In the view of the Panel, Articles 31 and 32 VCLT provide the relevant criteria in the light of which Article III:2 should be interpreted. The Panel recalled that Articles 31 and 32 VCLT state:

"Article 31 General rule of interpretation

1. A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose.
2. The context for the purpose of the interpretation of a treaty shall comprise, in addition to the text, including its preamble and annexes:
 - (a) any agreement relating to the treaty which was made between all the parties in connection with the conclusion of the treaty;
 - (b) any instrument which was made by one or more parties in connection with the conclusion of the treaty and accepted by the other parties as an instrument related to the treaty.
3. There shall be taken into account together with the context:
 - (a) any subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions;
 - (b) any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation;
 - (c) any relevant rules of international law applicable in the relations between the parties.
4. A special meaning shall be given to a term if it is established that the parties so intended.

Article 32 Supplementary means of interpretation

Recourse may be had to supplementary means of interpretation, including the preparatory work of the treaty and the circumstances of its conclusion, in order

⁸¹ See, for example, the panel report on "Japan - Customs Duties, Taxes and Labelling Practices on Imported Wines and Alcoholic Beverages", adopted on 10 November 1987, BISD 34S/83 (hereinafter "the 1987 Panel Report"); see also the panel report on "EC - Imposition of Anti-dumping Duties on Imports of Cotton Yarn From Brazil", ADP/137, adopted on 30 October 1995, paras. 540ff.; see also the Appellate Body report on "United States - Standards for Reformulated and Conventional Gasoline", WT/DS2/AB/R, adopted on 20 May 1996.

to confirm the meaning resulting from the application of article 31, or to determine the meaning when the interpretation according to article 31:

- (a) leaves the meaning ambiguous or obscure; or
- (b) leads to a result which is manifestly absurd or unreasonable”.

6.9 Consequently, the Panel concluded that the starting point of an interpretation of an international treaty, such as the General Agreement on Tariffs and Trade 1994, in accordance with Article 31 VCLT, is the wording of the treaty. The wording should be interpreted in its context and in the light of the object and the purpose of the treaty as a whole and subsequent practice and agreements should be taken into account. Recourse to supplementary means of interpretation should be made exceptionally only under the conditions specified in Article 32 VCLT. The Panel noted that none of the parties to the present dispute argued that recourse to supplementary means of interpretation was necessary.

6.10 In this respect, the Panel noted that no formal subsequent agreement as to the interpretation of Article III:2 exists among the WTO Members. The Panel noted that other GATT and WTO panels have interpreted Article III and that panel reports adopted by the GATT CONTRACTING PARTIES and the WTO Dispute Settlement Body constitute subsequent practice in a specific case by virtue of the decision to adopt them. Article 1(b)(iv) of GATT 1994 provides institutional recognition that adopted panel reports constitute subsequent practice. Such reports are an integral part of GATT 1994, since they constitute “other decisions of the CONTRACTING PARTIES to GATT 1947”. The Panel noted that Article 1(b)(iv) does not provide a hierarchy among “other decisions of the CONTRACTING PARTIES to GATT 1947”. Moreover, the Panel noted that the panel report on “European Economic Community - Restrictions on Imports of Dessert Apples - Complaint by Chile”⁸² (hereinafter “the 1989 Panel”) had concluded that:

“...It would take into account the 1980 Panel report and the legitimate expectations created by the adoption of this report, but also other GATT practices and panel reports adopted by the CONTRACTING PARTIES and the particular circumstances of this complaint. The Panel, therefore, did not feel it was legally bound by all the details and legal reasoning of the 1980 Panel report”.

As a consequence, the 1989 Panel independently examined whether certain EEC measures restricted the marketing of products and reached a different conclusion than had the 1980 Panel.⁸³ In light of the foregoing, the Panel was of the view that panel reports adopted by the CONTRACTING PARTIES constitute subsequent practice in a specific case and as such have to be taken into account by subsequent panels dealing with the same or a similar issue. The Panel noted, however, that it does not necessarily have to follow their reasoning or results. The

⁸²Panel report adopted on 22 June 1989, BISD 36S/93, para. 12.1.

⁸³See the panel report on “EEC - Restrictions on Imports of Apples from Chile”, adopted on 10 November 1980, BISD 27S/98.

Panel further noted that unadopted panel reports have no legal status in the GATT or WTO system since they have not been endorsed through decisions by the CONTRACTING PARTIES to GATT or WTO Members. Thus, the Panel decided that it did not have to take them into account as they do not constitute subsequent practice. In the Panel's view, however, a panel could nevertheless find useful guidance in the reasoning of an unadopted panel report that it considered to be relevant.

2. Article III

6.11 The Panel proceeded on the basis of the interpretative rule of the VCLT by turning first to the wording of Article III:2. The Panel noted that Article III:2 is concerned with two different factual situations: Article III:2, first sentence, is concerned with the treatment of like products, whereas Article III:2, second sentence, is concerned with the treatment of directly competitive or substitutable products, i.e., products other than like products, since no mention of like products is made in Article III:2, second sentence. In the Panel's view, the inclusion of the words "moreover" and "otherwise" in the second sentence of Article III:2 makes this point clear. The Interpretative Note ad Article III:2 further clarifies this distinction by providing an example where the first sentence of Article III:2 is not violated whereas the second is, thus confirming the existence of two distinct obligations in Article III:2.

6.12 The Panel, having established the basis for interpretation of Article III:2, turned to an examination of its elements. The Panel noted that while Article III:2, second sentence, contains a reference "to the principles set forth in paragraph 1", no such reference is contained in Article III:2, first sentence. The Panel recalled that according to Article III:1, WTO Members recognize that domestic legislation "should not be applied ... so as to afford protection to domestic production". In this context, the Panel felt that it was necessary to examine the relationship between Article III:2 and Article III:1. The Panel noted that the latter contains general principles concerning the imposition of internal taxes, internal charges, and laws, regulations and requirements affecting the treatment of imported and domestic products, while the former provides for specific obligations regarding internal taxes and internal charges. The words "recognize" and "should" in Article III:1, as well as the wording of Article III:2, second sentence, ("the principles"), make it clear that Article III:1 does not contain a legally binding obligation but rather states general principles. In contrast, the use of the word "shall" in Article III:2, both sentences, makes it clear that Article III:2 contains two legally binding obligations. Consequently, the starting point for an interpretation of Article III:2 is Article III:2 itself and not Article III:1. Recourse to Article III:1, which constitutes part of the context of Article III:2, will be made to the extent relevant and necessary.

6.13 The Panel then turned to other contextual elements that have to be taken into account, as required by Article 31 VCLT. The Panel noted in this respect the relationship between Articles II and III of GATT 1994. The Panel concluded, as had previous panels that dealt with the same issue, that one of the main purposes of Article III is to guarantee that WTO Members will not undermine through internal measures their commitments under Article II. The Panel noted in this respect that an adopted panel report that had dealt with this issue had stated that:

“... one of the basic purposes of Article III was to ensure that the contracting parties' internal charges and regulations were not such as to frustrate the effect of tariff concessions granted under Article II ...”.⁸⁴

The Panel further took note of the fact that another adopted panel report concluded on the same issue that:

“...The most-favoured-nation requirement in Article I, and also tariff bindings under Article II, would become ineffective without the complementary prohibition in Article III on the use of internal taxation and regulation as a discriminatory non-tariff trade barrier”.⁸⁵

3. Article III:2, First Sentence

a) Overview

6.14 In light of the foregoing, the Panel then proceeded to an analysis of how the legal obligations imposed by Article III:2, first sentence, should be interpreted. In this context, the Panel recalled the divergent views of the parties to the dispute: the Panel noted that, with respect to like products, the Community essentially argued in favour of a two-step procedure whereby the Panel should establish first whether the products in question are like and, if so, then proceed to examine whether taxes imposed on foreign products are in excess of those imposed on like domestic products. The Community had stated that physical characteristics of the products concerned, their end-uses, as well as consumer preferences could provide relevant criteria for the Panel to judge whether the products concerned were like. The Panel noted in this respect, that complainants have the burden of proof to show first, that products are like and second, that foreign products are taxed in excess of domestic ones.

6.15 The Panel further took note of the statements by Japan that essentially argued that the Panel should examine the contested legislation in the light of its aim and effect in order to determine whether or not it is consistent with Article III:2. According to this view, in case the aim and effect of the contested legislation do not operate so as to afford protection to domestic production, no inconsistency with Article III:2 can be established. The Panel further took note of the statement by the United States that essentially argued that, in determining whether two products that were taxed differently under a Member's origin-neutral tax measure were nonetheless “like products” for the purposes of Article III:2, the Panel should examine not only the similarity in physical characteristics and end-uses, consumer tastes and preferences, and tariff classifications for each product, but also whether the tax distinction in question was “applied ... so as to afford protection to domestic production”: that is, whether the aim and effect of that distinction, considered as a whole, was to afford protection to domestic production. According to this view, if the tax distinction in question is not being applied so as

⁸⁴See the panel report on “Canada - Import, Distribution and Sale of Certain Alcoholic Drinks by Provincial Marketing Agencies”, adopted on 18 February 1992, BISD 39S/27, paras. 5.30 - 5.31.

⁸⁵See the panel report on “United States - Measures Affecting Alcoholic and Malt Beverage”, adopted on 19 June 1992, BISD 39S/206, para. 5.9 (the “1992 Malt Beverages” report). See also the discussion in para. 6.21.

to afford protection to domestic production, the products between which the distinction is drawn are not to be deemed "like products" for the purpose of Article III:2. The Panel noted that the United States and Japan reached opposite results by applying essentially the same test. Japan concluded that its legislation did not have the aim or effect of affording protection, while the United States concluded that the categorization made in that legislation did have such an aim and effect. Lastly in this context, the Panel noted that the United States also argued that independently of the legal test chosen and applied, the Panel should find that Japan in this case is in violation of its obligations under Article III:2. It was also the view of Japan that independently of the legal test chosen and applied, the Panel should find that Japan is not in violation of its obligations under Article III:2.

6.16 The Panel first turned to the test proposed by Japan and the United States. The Panel noted, in this respect, that the proposed aim-and-effect test is not consistent with the wording of Article III:2, first sentence. The Panel recalled that the basis of the aim-and-effect test is found in the words "so as to afford protection" contained in Article III:1.⁸⁶ The Panel further recalled that Article III:2, first sentence, contains no reference to those words. Moreover, the adoption of the aim-and-effect test would have important repercussions on the burden of proof imposed on the complainant. The Panel noted in this respect that the complainants, according to the aim-and-effect test, have the burden of showing not only the effect of a particular measure, which is in principle discernible, but also its aim, which sometimes can be indiscernible. The Panel also noted that very often there is a multiplicity of aims that are sought through enactment of legislation and it would be a difficult exercise to determine which aim or aims should be determinative for applying the aim-and-effect test.⁸⁷ Moreover, access to the complete legislative history, which according to the arguments of the parties defending the aim-and-effect test, is relevant to detect protective aims, could be difficult or even impossible for a complaining party to obtain. Even if the complete legislative history is available, it would be difficult to assess which kinds of legislative history (statements in legislation, in official legislative reports, by individual legislators, or in hearings by interested parties) should be primarily determinative of the aims of the legislation.⁸⁸ The Panel recalled in this respect the argument by the United States that the aim-and-effect test should be applicable only with respect to origin-neutral measures. The Panel noted that neither the wording of Article III:2, nor that of Article III:1 support a distinction between origin-neutral and origin-specific

⁸⁶ See paras. 4.16 - 4.19 and 4.24ff. of the Descriptive Part.

⁸⁷ The Panel noted, in this respect, an interesting parallel with the legal status of "supplementary means" of interpretation of treaties -- that comprise preparatory work -- and their relevance for interpreting treaties. The Panel noted that according to Article 32 VCLT recourse to supplementary means of interpretation is required only as an exception in specific circumstances. The Panel noted in this respect the commentary of the International Law Commission: "The Commission considered that the exception must be strictly limited, if it is not to weaken unduly the authority of the ordinary meaning of the terms." The Panel further noted the statement of the International Law Commission that "...the preparatory work...does not, in consequence, have the same authentic character as an element of interpretation, however valuable it may sometimes be in throwing light in the expression of the agreement in the text. Moreover, it is beyond question that the records of treaty negotiations are in many cases incomplete or misleading, so that considerable discretion has to be exercised in determining their value as an element of interpretation. D. Rauschning and R.G. Wetzel, *The Vienna Convention on the Law of Treaties, Travaux Préparatoires* (Frankfurt: Alfred Metzner Verlag, 1978), pp. 255, 252. The Panel noted that considerable differences exist between preparatory work of international treaties and preparatory work of domestic legislation that preclude the automatic transposition of the reasoning of the International Law Commission to the case before it. Nevertheless, in the Panel's view, the analysis and reasoning of the International Law Commission could be relevant even in the context of preparatory work of domestic legislation.

⁸⁸ See para. 4.17 of the Descriptive Part.

measures.

6.17 The Panel further noted that the list of exceptions contained in Article XX of GATT 1994 could become redundant or useless because the aim-and-effect test does not contain a definitive list of grounds justifying departure from the obligations that are otherwise incorporated in Article III.⁸⁹ The purpose of Article XX is to provide a list of exceptions, subject to the conditions that they “are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction of international trade”, that could justify deviations from the obligations imposed under GATT. Consequently, in principle, a WTO Member could, for example, invoke protection of health in the context of invoking the aim-and-effect test. The Panel noted that if this were the case, then the standard of proof established in Article XX would effectively be circumvented. WTO Members would not have to prove that a health measure is “necessary” to achieve its health objective.⁹⁰ Moreover, proponents of the aim-and-effect test even shift the burden of proof, arguing that it would be up to the complainant to produce a *prima facie* case that a measure has both the aim and effect of affording protection to domestic production and, once the complainant has demonstrated that this is the case, only then would the defending party have to present evidence to rebut the claim.⁹¹ In sum, the Panel concluded that for reasons relating to the wording of Article III as well as its context, the aim-and-effect test proposed by Japan and the United States should be rejected.

6.18 The Panel turned at this point to the relevance of the two GATT panel reports that, according to the arguments of Japan and the United States, have espoused the aim-and-effect test. With respect to the panel report on “United States - Taxes on Automobiles” (US Auto Taxes)⁹², the Panel noted that the report remains unadopted and that, for the reasons stated in paragraph 6.10, it did not have to take it into account since it does not constitute subsequent practice. At any rate, for the reasons mentioned in paragraphs 6.16 and 6.17, the Panel was not persuaded by the reasoning contained in the panel report on US Auto Taxes. With respect to the 1992 Malt Beverages report, the Panel first noted that it interpreted the term “like product” as it appears in Article III:2 in a manner largely consistent with the interpretation of the 1987 Panel Report that had previously interpreted the same term. The Panel noted that the 1992 Malt Beverages report, when interpreting the term “like product”, took into account the product's end-uses, consumer tastes and habits, and the product's properties, nature and quality. However, the 1992 Malt Beverages report also considered whether product differentiation is being made “so as to afford protection to domestic production”.⁹³ The Panel was not in a position to detect how the 1992 Malt Beverages panel weighed the different criteria that it took into account in order to determine whether the products in dispute were like. In the Panel's view, however, an interpretation of the term “like product” as it appears in Article III:2, first

⁸⁹In this context, the Panel noted that the Appellate Body in its report on “United States - Standards for Reformulated and Conventional Gasoline”, noted that “one of the corollaries of the ‘general rule of interpretation’ in the Vienna Convention is that interpretation must give meaning and effect to all the terms of a treaty. An interpreter is not free to adopt a reading that would result in reducing whole clauses or paragraphs of a treaty to redundancy or inutility”. WT/DS2/AB/R, at p.23.

⁹⁰See, for example, the panel report on “Thailand - Restrictions on Importation of and Internal Taxes on Cigarettes”, adopted on 7 November 1990, BISD 37S/200.

⁹¹See para. 4.32 of the Descriptive Part.

⁹²DS31/R, report dated 11 October 1994.

⁹³See the 1992 Malt Beverages report, paras. 5.25 - 5.26.

sentence, that conditions likeness on the criterion whether a domestic legislation operates so as to afford protection to domestic production, is inconsistent with the wording of Article III:2, first sentence. The Panel recalled its conclusions reached in this respect in paragraphs 6.16 and 6.17. For this reason, the Panel decided not to follow the interpretation of the term “like product” as it appears in Article III:2, first sentence, advanced by the 1992 Malt Beverages report in so far as it incorporates the aim-and-effect test.

6.19 The Panel, having decided not to apply the aim-and-effect test proceeded to develop the legal test that it would apply in this case in order to determine whether Japan had acted inconsistently with its obligations under Article III. More specifically, in the view of the Panel, the wording of Article III:2, first sentence, requires it to make three determinations: (i) whether the products concerned are like, (ii) whether the contested measure is an “internal tax” or “other internal charge” (not an issue in this case) and (iii) if so, whether the tax imposed on foreign products is in excess of the tax imposed on like domestic products. If these three determinations are in the affirmative, such a tax would result in the WTO Member imposing it being in violation of the obligation contained in Article III:2, first sentence. Moreover, in the Panel's view, the only relevant contextual elements supported this interpretation. The Panel recalled in this respect its conclusions reached in paragraph 6.12 concerning the limited relevance of Article III:1 to the interpretation of Article III:2. The Panel further recalled that past GATT panels had followed this approach.⁹⁴ Thus, the Panel decided to proceed on the basis outlined in this paragraph.

⁹⁴See for example, the panel report on “United States - Taxes on Petroleum and Certain Imported Substances”, adopted on 17 June 1987, BISD 34S/136; the 1987 Panel Report; see also the panel report on “United States - Standards for Reformulated and Conventional Gasoline”, WT/DS2/R, adopted on 20 May 1996.

b) Like Products

6.20 The Panel noted that the term “like product” appears in various GATT provisions. The Panel further noted that it did not necessarily follow that the term had to be interpreted in a uniform way. In this respect, the Panel noted the discrepancy between Article III:2, on the one hand, and Article III:4 on the other: while the former referred to Article III:1 and to like, as well as to directly competitive or substitutable products (see also Article XIX of GATT), the latter referred only to like products. If the coverage⁹⁵ of Article III:2 is identical to that of Article III:4, a different interpretation of the term “like product” would be called for in the two paragraphs. Otherwise, if the term “like product” were to be interpreted in an identical way in both instances, the scope of the two paragraphs would be different. This is precisely why, in the Panel's view, its conclusions reached in this dispute are relevant only for the interpretation of the term “like product” as it appears in Article III:2.

⁹⁵By the term “coverage”, the Panel means whether Article III:4 regulates the treatment of both categories of products mentioned in Article III:2, namely both “like” and “directly competitive or substitutable” products.

6.21 The Panel noted that previous panel and working party reports had unanimously agreed that the term "like product" should be interpreted on a case-by-case basis.⁹⁶ The Panel further noted that previous panels had not established a particular test that had to be strictly followed in order to define likeness. Previous panels had used different criteria in order to establish likeness, such as the product's properties, nature and quality, and its end-uses; consumers' tastes and habits, which change from country to country; and the product's classification in tariff nomenclatures.⁹⁷ In the Panel's view, "like products" need not be identical in all respects. However, in the Panel's view, the term "like product" should be construed narrowly in the case of Article III:2, first sentence. This approach is dictated, in the Panel's view, by two independent reasons: (i) because Article III:2 distinguishes between like and directly competitive or substitutable products, the latter obviously being a much larger category of products than the former; and (ii) because of the Panel's conclusions reached with respect to the relationship between Articles III and II. As to the first point, the distinction between "like" and "directly competitive or substitutable products" is discussed in paragraph 6.22. As to the second point, as previous panels had noted, one of the main objectives of Article III:2 is to ensure that WTO Members do not frustrate the effect of tariff concessions granted under Article II through internal taxes and other internal charges, it follows that a parallelism should be drawn in this case between the definition of products for purposes of Article II tariff concessions and the term "like product" as it appears in Article III:2. This is so in the Panel's view, because with respect to two products subject to the same tariff binding and therefore to the same maximum border tax, there is no justification, outside of those mentioned in GATT rules, to tax them in a differentiated way through internal taxation. This does not mean that the determination of whether products are "like" should be based exclusively on the definition of products for tariff bindings, but in the Panel's view, especially where it is sufficiently detailed, a product's description for this purpose is in this case an important criterion for confirming likeness for the purposes of Article III:2. The Panel noted that its proposed interpretation does not unduly restrict the possibility offered to WTO Members to challenge internal taxes that discriminate against foreign products, since Article III:2, second sentence, effectively prohibits the taxation of "directly competitive or substitutable products" "so as to afford protection to domestic production". As explained in the next paragraph, the phrase "directly competitive or substitutable products", should be interpreted more broadly than the phrase "like products". In the Panel's view, its interpretation of Article III:2, first sentence, is in accordance with the requirements of Article 31 VCLT.

⁹⁶See, for example, the Working Party Report on "Border Tax Adjustments", L/3464, adopted on 2 December 1970, BISD 18S/97, p. 102, para. 18 (hereinafter "the 1970 Working Party report"); the panel report on "United States - Taxes on Petroleum and Certain Imported Substances", adopted on 17 June 1987, BISD 34S/136, pp.154-155, para. 5.1.1; the 1987 Panel Report, pp.113-115, para. 5.5-5.7; the 1992 *Malt Beverages* report, pp. 276-277, paras. 5.25 - 5.26.

⁹⁷See the 1970 Working Party report on "Border Tax Adjustments", op. cit., at para. 18; the 1987 Panel Report at para. 5.6; the panel report on "United States - Taxes on Petroleum and Certain Imported Substances", op. cit., at para. 5.1.1; the panel report on "EEC - Measures on Animal Feed Proteins", adopted on 14 March 1978, BISD 25S/49, at para. 4.3.

6.22 The wording of Article III and of the Interpretative Note ad Article III make it clear that a distinction must be drawn between, on the one hand, like, and, on the other, directly competitive or substitutable products. Such an approach is in conformity with the principle of “effective treaty interpretation” as laid down in the “general rule of interpretation” of the Vienna Convention on the Law of Treaties. The Panel recalled in this respect the conclusions of the Appellate Body in its report on “United States - Standards for Reformulated and Conventional Gasoline” where it stated that “an interpreter is not free to adopt a reading that would result in reducing whole clauses or paragraphs of a treaty to redundancy or inutility.”⁹⁸ In the view of the Panel, like products should be viewed as a subset of directly competitive or substitutable products. The wording (“like products” as opposed to “directly competitive or substitutable products”) confirmed this point, in the sense that all like products are, by definition, directly competitive or substitutable products, whereas all directly competitive or substitutable products are not necessarily like products. Giving a narrow meaning to “like products” is also justified by the inescapability of violation in case of taxation of foreign products in excess of like domestic products⁹⁹. Moreover, in the Panel’s view, the wording makes it clear that the appropriate test to define whether two products are “like” or “directly competitive or substitutable” is the marketplace. The Panel recalled in this respect the words used in the Interpretative Note ad Article III, paragraph 2, namely “where competition exists”: competition exists by definition in markets. In the view of the Panel, to define a precise cut-off point that distinguishes between, on the one hand, like, and on the other, directly competitive or substitutable products requires an arbitrary decision. The Panel decided therefore, to consider criteria on a case-by-case basis in order to determine whether two products are like or directly competitive or substitutable. The Panel recalled, in this respect, that previous panels had pronounced in favour of a case-by-case approach when defining like or directly competitive or substitutable products.¹⁰⁰ In the view of the Panel, descriptions used in the context of tariff classifications and bindings whilst by themselves not providing decisive guidance on likeness, can be used nevertheless in considering the content of “like products” in the context of Article III:2, first sentence. Such an approach is in line with previous panel reports that concluded that the purpose of Article III was to avoid that “the value of the bindings under Article II of the Agreement and of the general rules of non-discrimination as between imported and domestic products could be easily evaded.”¹⁰¹ Previous panels that dealt with the same issue have used a series of criteria in order to define likeness or substitutability.¹⁰² In the view of the Panel, the wording of the term “directly competitive or substitutable” does not suggest at all that physical resemblance is required in order to establish whether two products fall under this category. This impression, in the Panel’s view, was further supported by the words “where competition exists” of the Interpretative Note; competition can and does exist among products that do not necessarily share the same physical characteristics. In the Panel’s view, the decisive criterion in order to determine whether two products are directly competitive or substitutable is whether they have common end-uses, *inter alia*, as shown by elasticity of substitution. The wording of

⁹⁸See WT/DS2/AB/R, at p.23.

⁹⁹The panel report on “United States - Taxes on Petroleum and Certain Imported Substances”, op. cit., at para. 5.1.9 made it clear that no *de minimis* defense can be raised in case of taxation of foreign products in excess of domestic like products. The Panel agreed with this statement.

¹⁰⁰See footnote 96 and accompanying text.

¹⁰¹See the panel report on “Italian Discrimination Against Imported Agricultural Machinery”, adopted on 23 October 1958, BISD 7S/60 at p.64, para. 15; see also the 1987 Panel Report op. cit.

¹⁰²See footnote 96 and accompanying text.

the term “like products” however, suggests that commonality of end-uses is a necessary but not a sufficient criterion to define likeness. In the view of the Panel, the term “like products” suggests that for two products to fall under this category they must share, apart from commonality of end-uses, essentially the same physical characteristics. In the Panel’s view its suggested approach has the merit of being functional, although the definition of likeness might appear somewhat “inflexible”. Flexibility is required in order to conclude whether two products are directly competitive or substitutable. In the Panel’s view, the suggested approach can guarantee the flexibility required, since it permits one to take into account specific characteristics in any single market; consequently, two products could be considered to be directly competitive or substitutable in market A, but the same two products would not necessarily be considered to be directly competitive or substitutable in market B. The Panel proceeded to apply this approach to the products in dispute in the present case.

6.23 The Panel next turned to an examination of whether the products at issue in this case were like products, starting first with vodka and shochu. The Panel noted that vodka and shochu shared most physical characteristics. In the Panel’s view, except for filtration, there is virtual identity in the definition of the two products. The Panel noted that a difference in the physical characteristic of alcoholic strength of two products did not preclude a finding of likeness especially since alcoholic beverages are often drunk in diluted form. The Panel then noted that essentially the same conclusion had been reached in the 1987 Panel Report, which

“... agreed with the arguments submitted to it by the European Communities, Finland and the United States that Japanese shochu (Group A) and vodka could be considered as ‘like’ products in terms of Article III:2 because they were both white/clean spirits, made of similar raw materials, and the end-uses were virtually identical”.¹⁰³

¹⁰³Para. 5.7. The same paragraph further reads: “... the Panel found that the traditional Japanese consumer habits with regard to shochu provided no reason for not considering vodka to be a ‘like’ product. ... Even if imported alcoholic beverages (e.g vodka) were not considered to be ‘like’ to Japanese alcoholic beverages (e.g shochu Group A), the flexibility in the use of alcoholic drinks and their common characteristics often offered an alternative choice for consumers leading to a competitive relationship.”

Following its independent consideration of the factors mentioned in the 1987 Panel Report, the Panel agreed with this statement. The Panel then recalled its conclusions concerning the relationship between Articles II and III. In this context, it noted that (i) vodka and shochu were currently classified in the same heading in the Japanese tariffs, (although under the new Harmonized System (HS) Classification that entered into force on 1 January 1996 and that Japan plans to implement, shochu appears under tariff heading 2208.90 and vodka under tariff heading 2208.60); and (ii) vodka and shochu were covered by the same Japanese tariff binding at the time of its negotiation. Of the products at issue in this case, only shochu and vodka have the same tariff applied to them in the Japanese tariff schedule (see Annex 1). The Panel noted that, with respect to vodka, Japan offered no further convincing evidence that the conclusion reached by the 1987 Panel Report was wrong, not even that there had been a change in consumers' preferences in this respect. The Panel further noted that Japan's basic argument is not that the two products are unlike, in terms of the criteria applied in the 1987 Panel Report, but rather that they are unlike because the Japanese tax legislation does not have the aim and effect to protect shochu. The Panel noted, however, that it had already rejected the aim-and-effect test. Consequently, in light of the conclusion of the 1987 Panel Report and of its independent consideration of the issue, the Panel concluded that vodka and shochu are like products. In the Panel's view, only vodka could be considered as like product to shochu since, apart from commonality of end-uses, it shared with shochu most physical characteristics. Definitionally, the only difference is in the media used for filtration. Substantial noticeable differences in physical characteristics exist between the rest of the alcoholic beverages at dispute and shochu that would disqualify them from being regarded as like products. More specifically, the use of additives would disqualify liqueurs, gin and genever; the use of ingredients would disqualify rum; lastly, appearance (arising from manufacturing processes) would disqualify whisky and brandy. The Panel therefore decided to examine whether the rest of alcoholic beverages, other than vodka, at dispute in the present case could qualify as directly competitive or substitutable products to shochu. The Panel lastly noted that the 1987 Panel Report had also considered these products only under Article III:2, second sentence.

c) Taxation in Excess of that Imposed on Like Domestic Products

6.24 The Panel then proceeded to examine whether vodka is taxed in excess of the tax imposed on shochu under the Japanese Liquor Tax Law. The Panel noted that what was contested in the Japanese legislation was a system of specific taxes imposed on various alcoholic drinks. In this respect, it noted that vodka was taxed at 377,230 Yen per kilolitre - for an alcoholic strength below 38° - that is 9,927 Yen per degree of alcohol, whereas shochu A was taxed at 155,700 Yen per kilolitre - for an alcoholic strength between 25° and 26° - that is 6,228 Yen per degree of alcohol.¹⁰⁴ The Panel further noted that Article III:2 does not contain any presumption in favour of a specific mode of taxation. Under Article III:2, first sentence, WTO Members are free to choose any system of taxation they deem appropriate provided that they do not impose on foreign products taxes in excess of those imposed on like domestic products. The phrase "not in excess of those applied ... to like domestic products" should be interpreted to mean at least identical or better tax treatment. The Japanese taxes on vodka and shochu are calculated on the basis of and vary according to the alcoholic content of the products and, on this basis, it is obvious that the taxes imposed on vodka are higher than those imposed on shochu. Accordingly, the Panel concluded that the tax imposed on vodka is in excess of the tax imposed on shochu.

6.25 The Panel then addressed the argument put forward by Japan that its legislation, by keeping the tax/price ratio "roughly constant", is trade neutral and consequently no protective aim and effect of the legislation can be detected. In this connection, the Panel recalled Japan's argument that its aim was to achieve neutrality and horizontal tax equity.¹⁰⁵ The Panel noted that it had already decided that the existence or non-existence of a protective aim and effect is not relevant in an analysis under Article III:2, first sentence. To the extent that Japan's argument is that its Liquor Tax Law does not impose on foreign products (i.e., vodka) a tax in excess of the tax imposed on domestic like products (i.e., shochu), the Panel rejected the argument for the following reasons:

(i) The benchmark in Article III:2, first sentence, is that internal taxes on foreign products shall not be imposed in excess of those imposed on like domestic products. Consequently, in the context of Article III:2, first sentence, it is irrelevant whether "roughly" the same treatment through, for example, a "roughly constant" tax/price ratio is afforded to domestic and foreign like products or whether neutrality and horizontal tax equity is achieved.

¹⁰⁴ See para. 2.3 of the Descriptive Part for a complete description of the Japanese liquor tax rates.

¹⁰⁵ See para. 4.132ff. of the Descriptive Part.

(ii) Even if it were to be accepted that a comparison of tax/price ratios of products could offset the fact that vodka was taxed significantly more heavily than shochu on a volume and alcoholic content basis, there were significant problems with the methodology for calculating tax/price ratios submitted by Japan, such that arguments based on that methodology could only be viewed as inconclusive. More particularly, although Japan had argued that the comparison of tax/price ratios should be done on a category-by-category basis, its statistics on which the tax/price ratios were based excluded domestically produced spirits from the calculation of tax/price ratios for spirits and whisky/brandy. Since the prices of the domestic spirits and whisky/brandy are much lower than the prices of the imported goods, this exclusion has the impact of reducing considerably the tax/price ratios cited by Japan for those products. In this connection, the Panel noted that one consequence of the Japanese tax system was to make it more difficult for cheaper imported brands of spirits and whisky/brandy to enter the Japanese market. Moreover, the Panel further noted that the Japanese statistics were based on suggested retail prices and there was evidence in the record¹⁰⁶ that these products were often sold at a discount, at least in Tokyo. To the extent that the prices were unreliable, the resultant tax/price ratios would be unreliable as well.¹⁰⁷

(iii) Nowhere in the contested legislation was it mentioned that its purpose was to maintain a "roughly constant" tax/price ratio. This was rather an *ex post facto* rationalization by Japan and at any rate, there are no guarantees in the legislation that the tax/price ratio will always be maintained "roughly constant". Prices change over time and unless an adjustment process is incorporated in the legislation, the tax/price ratio will be affected. Japan admitted that no adjustment process exists in the legislation and that only *ex post facto* adjustments can occur. The Panel lastly noted that since the modification in 1989 of Japan's Liquor Tax Law there has been only one instance of adjustment.

6.26 The Panel then turned to the arguments put forward by Japan concerning taxation systems in other countries. The Panel noted that its terms of reference were strictly confined to the Japanese legislation. The Panel could not, therefore, consider the domestic taxation systems of other countries since they lie outside its terms of reference.

6.27 Consequently, the Panel concluded that, by taxing vodka in excess of shochu, Japan is in violation of its obligation under Article III:2, first sentence.

4. Article III:2, Second Sentence

a) Directly Competitive or Substitutable Products

¹⁰⁶See paras. 4.100, 4.142-4, 4.159, 4.160-1 of the Descriptive Part.

¹⁰⁷See paras. 4.100, 4.159, 4.160 and 4.165 of the Descriptive Part.

6.28 The Panel then turned to an analysis of the issues arising under Article III:2, second sentence. In the view of the Panel, the wording of Article III:2, second sentence, requires it to make two determinations: (i) whether the products concerned (whisky, brandy, gin, genever, rum and liqueurs) are directly competitive or substitutable, and (ii) if so, whether the treatment afforded to foreign products is contrary to the principles set forth in paragraph 1 of Article III. In the view of the Panel, the complainants have the burden of proof to show first, that the products concerned are directly competitive or substitutable and second, that foreign products are taxed in such a way so as to afford protection to domestic production. The Panel recalled that the term "directly competitive or substitutable product", in accordance with its ordinary meaning, should be interpreted more broadly than the term "like product". In this sense the Interpretative Note ad Article III:2, second sentence, speaks about products "where competition was involved between..." them. The Panel noted, in this respect, that independently of similarities with respect to physical characteristics or classification in tariff nomenclatures, greater emphasis should be placed on elasticity of substitution. In this context, factors like marketing strategies could also prove to be relevant criteria, since what is at issue is the responsiveness of consumers to the various products offered in the market. Such responsiveness, the Panel recalled, may vary from country to country,¹⁰⁸ but should not be influenced or determined by internal taxation.¹⁰⁹ The Panel noted the conclusions in the 1987 Panel Report,¹¹⁰ that a tax system that discriminates against imports has the consequence of creating and even freezing preferences for domestic goods. In the Panel's view, this meant that consumer surveys in a country with such a tax system would likely understate the degree of potential competitiveness between substitutable products.

¹⁰⁸See the 1970 Working Party report, op. cit., at para. 18.

¹⁰⁹In this respect, note para. 5.7 of the 1987 Panel Report "since consumer habits are variable in time and space and the aim of Article III:2 of ensuring neutrality of internal taxation as regards competition between imported and domestic like products could not be achieved if differential taxes could be used to crystallize consumer preferences for traditional domestic products, the Panel found that the traditional Japanese consumer habits with regard to shochu provided no reason for not considering vodka to be a like product". (emphasis added).

¹¹⁰See the 1987 Panel Report, op. cit., at para. 5.9.

6.29 In examining whether the products at issue were directly competitive or substitutable, the Panel first noted that the 1987 Panel Report that dealt with this issue concluded that both "white" and "brown" spirits were directly competitive or substitutable products to shochu, according to Article III:2, second sentence. The Panel noted in this respect, that the 1987 Panel Report had reached its conclusion based essentially on the substitutability among the products in dispute as a result of "their respective prices, their availability through trade and their other competitive inter-relationships".¹¹¹ Turning to the evidence in this case, the Panel noted that the complainants had submitted a study (the ASI study) that concludes that there is a high degree of price-elasticity between shochu, on the one hand, and five brown spirits (Scotch whisky, Japanese whisky, Japanese brandy, cognac, North American whisky) and three white spirits (gin, vodka and rum), on the other.¹¹² Japan questioned the relevance of this ASI study by noting that consumers were not allowed to choose other than the mentioned eight products (for example, they were not allowed to choose, beer, sake or wine) and also argued that if choices are too limited even such disparate products as hamburger and ice cream could be argued to be directly competitive or substitutable products. In the Panel's view, however, price-elasticity between the mentioned products is not altered by the fact that consumers were presented with a limited choice. At best, the argument by Japan, if proven, could eventually lead to the conclusion that the three products mentioned by Japan have a greater degree of price-elasticity with shochu. It would not, however, in the Panel's view, amount to a rejection of the existence of a significant directly competitive or substitutable relationship between shochu and the examined eight products.

6.30 The Panel further noted that as a result of the 1989 Japanese tax reform, the distinction between "premium whisky", "first grade whisky" and "second grade whisky" was abolished. This tax reform disadvantaged domestically produced whisky, by substantially increasing the tax rate on second grade whisky compared to the other alcoholic beverages at issue in the present case.¹¹³ The market share of domestic whisky including second grade fell from 26.7 per cent in 1988 to 19.6 per cent in 1990. This, according to the Community's evidence, led to a rise of both shochu's and foreign produced whisky's market shares in Japan.¹¹⁴ This proves to the Community that there is elasticity of substitution between whisky and shochu. The Panel further noted that Canada and the United States provided evidence to the same effect, that is showing that elasticity of substitution between whisky and shochu was evident as a result of the 1989 Japanese tax reform.¹¹⁵ The Panel took note that in its response, Japan argued that the combination of the expansion of shochu consumption and the declining whisky prices rather indicated the lack of a competitive relationship between the two commodities. In the Panel's view, Japan failed to take account of the fact that shochu and foreign whisky were in fact capturing the market share lost by domestically produced whisky. In the Panel's view, the fact that foreign produced whisky and shochu were competing for the same market is evidence that there was elasticity of substitution between them.

¹¹¹ See the 1987 Panel Report, op. cit., para. 5.7.

¹¹² See paras. 4.171ff. of the Descriptive Part.

¹¹³ See para. 4.82 of the Descriptive Part.

¹¹⁴ The Panel noted that this rise was short-lived, since as of 1992 the Japanese economy entered into recession and there was a shift of demand towards the less expensive categories of liquors.

¹¹⁵ See paras. 4.73, 4.77-8, 4.90-2, 4.111, 4.113, 4.115, 4.117, 4.171-2, 4.174 of the Descriptive Part.

6.31 The Panel noted Japan's argument that there is no elasticity of substitution between shochu and the rest of the alcoholic drinks in dispute in this case. If at all, according to Japan, the evidence the complainants provided to the Panel shows elasticity of substitution between shochu and beer. Japan based its argument on a survey conducted among consumers that showed, according to Japan, that in case shochu were not available 6 per cent of the consumers would switch to spirits whereas only 4 per cent to whisky; if whisky were not available, 32 per cent of the consumers would choose brandy and only 10 per cent would choose shochu. Japan submitted this survey to the Panel. The Panel did not accept Japan's argument on the grounds that Japan, in conducting this survey, failed to take into account price distortions caused by internal taxation. In other words, consumers' choices were sought within the existing price regime (which is the subject matter of the current dispute), and not independently of it. Moreover, in the Panel's view, the inadequacies of the survey notwithstanding, in case of non-availability of shochu, 10 per cent of the consumers would switch to spirits and whisky. This, in the Panel's view, was proof of significant elasticity of substitution between shochu, on the one hand, and whisky and spirits, on the other. The Panel noted that Japan further provided an econometric study in which no elasticity of substitution could be found between shochu, on the one hand, and spirits or whisky, on the other. This study attempted to evaluate the extent to which the relevant products are directly competitive.¹¹⁶ In considering the study, the Panel took account of the views of the parties and of general econometric principles. The Panel noted that the extent to which two products are competitive in economics is measured by the responsiveness of the demand for one product to the change in the demand for the other product (cross-price elasticity of demand). The more sensitive demand for one product is to changes in the price of the other product, *all other things being equal*, the more directly competitive they are. This is related to the substitutability of one product for another (elasticity of substitution). Under national antitrust and trade law régimes, the extent to which products directly compete is measured by the elasticity of substitution. Formal statistical methods are employed to measure, with a reasonable degree of certainty, the magnitude and direction of variables, based on actual observations. The greater the number of observations, the greater the degree of certainty. In the case of product demand and product substitutability (i.e., the direct competitiveness of products), the relevant information includes prices, quantities, and incomes. Ideally, one would like to test for the relationship between the price of one product and the demand for another, *all other things being equal*. Under these conditions, relatively simple statistical methods can be employed. This is the approach taken in the Japanese econometric study. However, all other things are not equal. When working with a set of (potentially) substitutable products, it is necessary to recognize that underlying trends in the data may affect the apparent relationship between the variables examined (serial and autocorrelation). In addition, the variables may in actuality be closely related. For example, outside factors (i.e., those not measured directly) may affect the markets that are examined jointly (multicollinearity). Moreover, changes in income may affect demand in all of the product markets studied, and this effect may vary systematically across the markets. In statistical studies of related markets involving time series data (as in the present study), one could normally expect to encounter all of these problems. Relatively standard methods can be employed to control for serial and autocorrelation and multicollinearity. Failure to account for these effects can render the results of simple statistical analysis meaningless. According to the complainants, this is the case of the study submitted by Japan. The Panel accepted the validity of these criticisms and noted that Japan had not

¹¹⁶See paras. 4.83ff. of the Descriptive Part.

succeeded in rebutting the criticism advanced by complainants and thus Japan's study did not refute the evidence of substitutability submitted by complainants.

6.32 The Panel then concluded that in deciding whether shochu and the other products in dispute were directly competitive or substitutable products, it noted that the products concerned were all distilled spirits and it would give particular emphasis to the following factors: the findings of the 1987 Panel Report; the studies put forward by the complainants (the ASI study) that contained persuasive evidence that there is significant elasticity of substitution among the products in dispute; the survey submitted by Japan that, notwithstanding the fact that it failed to take into account price distortions caused by internal taxation, still shows elasticity of substitution among the products in dispute; and, lastly, the evidence submitted by complainants concerning the 1989 Japanese tax reform which showed that whisky and shochu are essentially competing for the same market. In the view of the Panel, the conclusions of the 1987 Panel Report, buttressed by any of the other three factors, were sufficient for the Panel to conclude that shochu and the other products subject to dispute are directly competitive or substitutable according to Article III:2, second sentence.

b) “... So as to Afford Protection”

6.33 The Panel turned to the question whether Japan was violating its obligations under Article III:2, second sentence. In this respect, the Panel recalled the Interpretative Note ad Article III:2 that states:

“A tax conforming to the requirements of the first sentence of paragraph 2 would be considered to be inconsistent with the provisions of the second sentence only in cases where competition was involved between, on the one hand, the taxed product and, on the other hand, a directly competitive or substitutable product which was not similarly taxed”.

In the Panel's view, the Interpretative Note and Article III:2 explains how a national measure operates "so as to afford protection to domestic production" and thus runs counter to the principles set forth in Article III:1. In other words, if directly competitive or substitutable products are not "similarly taxed", and if it were found that the tax favours domestic products, then protection would be afforded to such products, and Article III:2, second sentence, is violated. Although the 1987 Panel Report did not focus on the Interpretative Note, its conclusions on the issue of "so as to afford protection" was essentially the same, as it concluded that the higher (i.e., dissimilar) Japanese taxes on imported alcoholic beverages and the existence of substitutability were "sufficient evidence of fiscal distortions of the competitive relationship between imported distilled liquors and domestic shochu affording protection to domestic producers of shochu".¹¹⁷ The Panel agrees with this conclusion. In this connection, the Panel noted that for it to conclude that dissimilar taxation afforded protection, it would be sufficient for it to find that the dissimilarity in taxation is not *de minimis*.¹¹⁸ In the Panel's view, it is appropriate to conclude, as have other GATT panels including the 1987 panel, that it is not necessary to show an adverse effect on the level of imports, as Article III generally is aimed at providing imports with "effective equality of opportunities" in "conditions of competition".¹¹⁹ In line with these interpretations of Article III, the Panel concluded that it is not necessary for complainants to establish the purpose or aim of tax legislation in order for the Panel to conclude that dissimilar taxation affords protection to domestic production. In the Panel's view, the Interpretative Note interpreted in this respect the term "so as to afford protection" which appears in Article III:1. The Panel took the view that "similarly taxed" is the appropriate benchmark in order to determine whether a violation of Article III:2, second sentence, has occurred as opposed to "in excess of" that constitutes the appropriate benchmark to determine whether a violation of Article III:2, first sentence, has occurred. In the Panel's view, the following indicators, *inter alia*, are relevant in determining whether the products in dispute are similarly taxed in this case: tax per litre of product, tax per degree of alcohol, *ad valorem* taxation, and the tax/price ratio.

a) With respect to taxation per kilolitre of product the Panel noted that the amounts were:¹²⁰

Shochu A (25°)	¥ 155,700	
Shochu B (25°)	¥ 102,100	
Whisky (40°)	¥ 982,300	
Brandy (40°)	¥ 982,300	
Spirits (38°)	¥ 377,230	(gin, rum, vodka)
Liqueurs (40°)	¥ 328,760	

The Panel concluded that the amounts of tax are not similar and that the differences are not *de minimis*.

¹¹⁷See the 1987 Panel Report, op. cit., para. 5.11.

¹¹⁸The Panel decided that it did not have to further define "*de minimis*", because in this case the differences in taxation were significant.

¹¹⁹See the panel report on "United States - Taxes on Petroleum and Certain Imported Substances", op. cit., para. 5.1.9; see also the panel report on "Italian Discrimination Against Imported Agricultural Machinery", op. cit., para. 12.

¹²⁰See para. 2.3 of the Descriptive Part.

b) With respect to taxation per degree of alcohol the Panel noted that the amounts were:¹²¹

Shochu A (25°)	¥ 6,228	
Shochu B (25°)	¥ 4,084	
Whisky (40°)	¥ 24,558	
Brandy (40°)	¥ 24,558	
Spirits (38°)	¥ 9,927	(gin, rum, vodka)
Liqueurs (40°)	¥ 8,219	

The Panel concluded that the amounts of tax are not similar and that the differences are not *de minimis*. Since the Japanese taxes at issue were calculated on the basis of the alcohol content of the various products, the Panel considered this dissimilarity to be particularly dispositive for its analysis under Article III:2, second sentence.

c) The Panel noted that Japan's Liquor Tax Law does not provide for *ad valorem* taxation and this criterion is, consequently, irrelevant in this case.

d) With respect to the tax/price ratio, the Panel noted that the statistics submitted by Japan show that significant differences exist between shochu and the other directly competitive or substitutable products and also noted that there are significantly different tax/price ratios within the same product categories. Moreover, there were significant problems with the methodology for calculating tax/price ratios submitted by Japan, such that arguments based on that methodology could only be viewed as inconclusive. More particularly, although Japan had argued that the comparison of tax/price ratios should be done on a category-by-category basis, its statistics on which the tax/price ratios were based excluded domestically produced spirits and whisky/brandy from the calculation of tax/price ratios for spirits and whisky/brandy. Since the prices of the domestic spirits and whisky/brandy are much lower than the prices of the imported ones, this exclusion has the impact of reducing considerably the tax/prices ratios cited by Japan for those products. In this connection, the Panel noted that one consequence of the Japanese tax system was to make it more difficult for cheaper imported brands of spirits and whisky/brandy to enter the market. Moreover, the Panel noted that the Japanese statistics were based on suggested retail prices and there was evidence in the record that these products were often sold at a discount, at least in Tokyo. To the extent that the prices were unreliable, the resultant tax/price ratios would be unreliable as well.

The Panel consequently concluded that the products in dispute are not similarly taxed and the taxes on shochu are lower than the taxes on the other products subject to dispute, leading the Panel to the conclusion that protection is afforded to shochu inconsistently with Japan's obligations under Article III:2, second sentence.

¹²¹Based on calculations upon information included in para. 2.3 of the Descriptive Part.

6.34 The Panel then addressed the argument put forward by Japan that the Japanese legislation is trade-neutral, and thus guarantees equality of competitive conditions, since it maintains a “roughly constant” tax/price ratio and no protective aim or effect of the legislation can be detected. In this connection, the Panel recalled the argument by Japan that its aim was to achieve horizontal tax equity.¹²² The Panel further recalled in this context that it had already dismissed the aim-and-effect test put forward by Japan. The Panel noted that to the extent that Japan's argument could be considered as an argument that Japan's Liquor Tax Law taxed directly competitive or substitutable products similarly, in the Panel's view, the argument should be rejected for the following reasons:

(i) The benchmark in Article III:2, second sentence, is whether internal taxes operate “so as to afford protection to domestic production”, a term which has been further interpreted in the Interpretative Note ad Article III:2, paragraph 2, to mean dissimilar taxation of domestic and foreign directly competitive or substitutable products. However, in the Panel's view, it is not at all clear that maintaining a “roughly constant” tax/price ratio avoids violating this requirement.

(ii) The statistics on the tax/price ratio show that significant differences exist between shochu and the other directly competitive or substitutable products¹²³ and that there are significantly different tax/price ratios within the same product categories. Therefore, the tax/price ratios could not be regarded as being “roughly constant”, and horizontal equity could not be demonstrated. Moreover, as noted in paragraph 6.33 above, there were significant problems with the methodology for calculating tax/price ratios submitted by Japan, such that arguments based on that methodology could only be viewed as inconclusive. More particularly, although Japan had argued that the comparison of tax/price ratios should be done on a category-by-category basis, its statistics on which the tax/price ratios were based excluded domestically produced spirits and whisky/brandy from the calculation of tax/price ratios for spirits and whisky/brandy. Since the prices of the domestic spirits and whisky/brandy are much lower than the prices of the imported ones, this exclusion has the impact of reducing considerably the tax/price ratios cited by Japan for those products. In this connection, the Panel noted that one consequence of the Japanese tax system was to make it more difficult for cheaper imported brands of spirits and whisky/brandy to enter the market. Moreover, the Panel noted that the Japanese statistics were based on suggested retail prices and there was evidence in the record that these products were often sold at a discount, at least in Tokyo. To the extent that the prices were unreliable, the resultant tax/price ratios would be unreliable as well.

(iii) Finally, the Panel noted that nowhere in the contested legislation was it mentioned that its purpose was to maintain a constant tax/price ratio. This is rather an *ex post facto* rationalization by Japan and, at any rate, there are no guarantees in the legislation that the tax/price ratio will always be maintained at a constant (or “roughly constant”) level. Prices change over time and unless an adjustment process is incorporated in the legislation, the tax/price ratio will be affected. Japan admitted that no adjustment process exists in the legislation and that only *ex post facto* adjustments can occur. The Panel lastly noted that since the modification of Japan's Liquor Tax Law there has been only one instance of adjustment.

¹²²See para. 4.132ff. of the Descriptive Part.

¹²³See paras. 4.100, 4.159, 4.160, 4.161 and 4.165 of the Descriptive Part.

Consequently, in the Panel's view, the argument by Japan that its legislation by keeping the tax/price ratio "roughly constant" is trade neutral and does not operate "so as to afford protection to domestic production" should be rejected.

6.35 The Panel took note, in this context, of the statement by Japan that the 1987 Panel Report erred when it concluded that shochu is essentially a Japanese product. The Panel accepted the evidence submitted by Japan according to which a shochu-like product is produced in various countries outside Japan, including the Republic of Korea, the People's Republic of China and Singapore. The Panel noted, however, that Japanese import duties on shochu are set at 17.9 per cent. At any rate what is at stake, in the Panel's view, is the market share of the domestic shochu market in Japan that was occupied by Japanese-made shochu. The high import duties on foreign-produced shochu resulted in a significant share of the Japanese shochu market held by Japanese shochu producers. Consequently, in the Panel's view, the combination of customs duties and internal taxation in Japan has the following impact: on the one hand, it makes it difficult for foreign-produced shochu to penetrate the Japanese market and, on the other, it does not guarantee equality of competitive conditions between shochu and the rest of "white" and "brown" spirits. Thus, through a combination of high import duties and differentiated internal taxes, Japan manages to "isolate" domestically produced shochu from foreign competition, be it foreign produced shochu or any other of the mentioned white and brown spirits. In the Panel's view, the table in Annex I illustrates this point.

VII. CONCLUSIONS

7.1 In light of the findings above, the Panel reached the following conclusions:

(i) Shochu and vodka are like products and Japan, by taxing the latter in excess of the former, is in violation of its obligation under Article III:2, first sentence, of the General Agreement on Tariffs and Trade 1994.

(ii) Shochu, whisky, brandy, rum, gin, genever, and liqueurs are "directly competitive or substitutable products" and Japan, by not taxing them similarly, is in violation of its obligation under Article III:2, second sentence, of the General Agreement on Tariffs and Trade 1994.

7.2 The Panel recommends that the Dispute Settlement Body request Japan to bring the Liquor Tax Law into conformity with its obligations under the General Agreement on Tariffs and Trade 1994.

[11] Patent Number: 5,618,572

[45] **Date of Patent:** *Apr. 8, 1997

[54] **FLAVORED MALT BEVERAGES PREPARED BY USING ULTRAFILTRATION METHODS**

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[73] Assignee: **Miller Brewing Company, Milwaukee, Wis.**

[*] Notice: The term of this patent shall not extend beyond the expiration date of Pat. No. 5,439,699.

[21] Appl. No.: 326,625

[22] Filed: Oct. 20, 1994

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 29,740, Mar. 11, 1993, Pat. No. 5,439,699.

[51] Int. Cl.⁶ C12C 12/04; C12G 3/08;
C12H 3/00

[52] U.S. Cl. 426/592; 426/330.4; 426/493

[58] **Field of Search** 426/330.4, 11,
426/14, 16, 329, 592, 493

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,803,546	8/1957	Bergmann et al. .	
3,332,779	7/1967	Krabbe et al. .	
3,798,331	3/1974	Bavisotto et al.	426/16
3,843,809	10/1974	Luck	426/592
3,908,021	9/1975	Rehberger et al.	426/16
4,021,580	5/1977	Raymond et al.	426/16
4,440,795	4/1984	Goldstein et al.	426/592
4,612,196	9/1986	Goldstein et al.	426/14
4,775,541	10/1988	Brown et al.	426/271
5,114,492	5/1992	Wolf et al.	127/42
5,294,450	3/1994	Word et al.	426/11
5,439,699	8/1995	Tripp et al.	426/592

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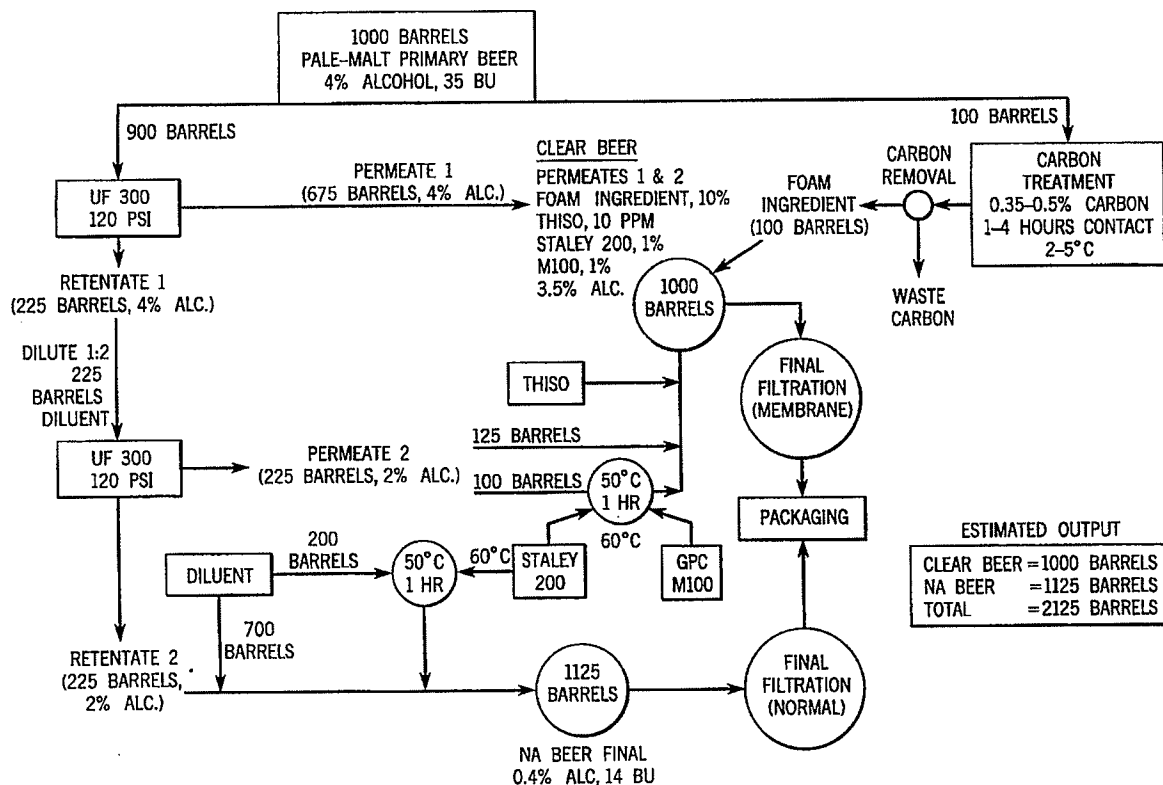
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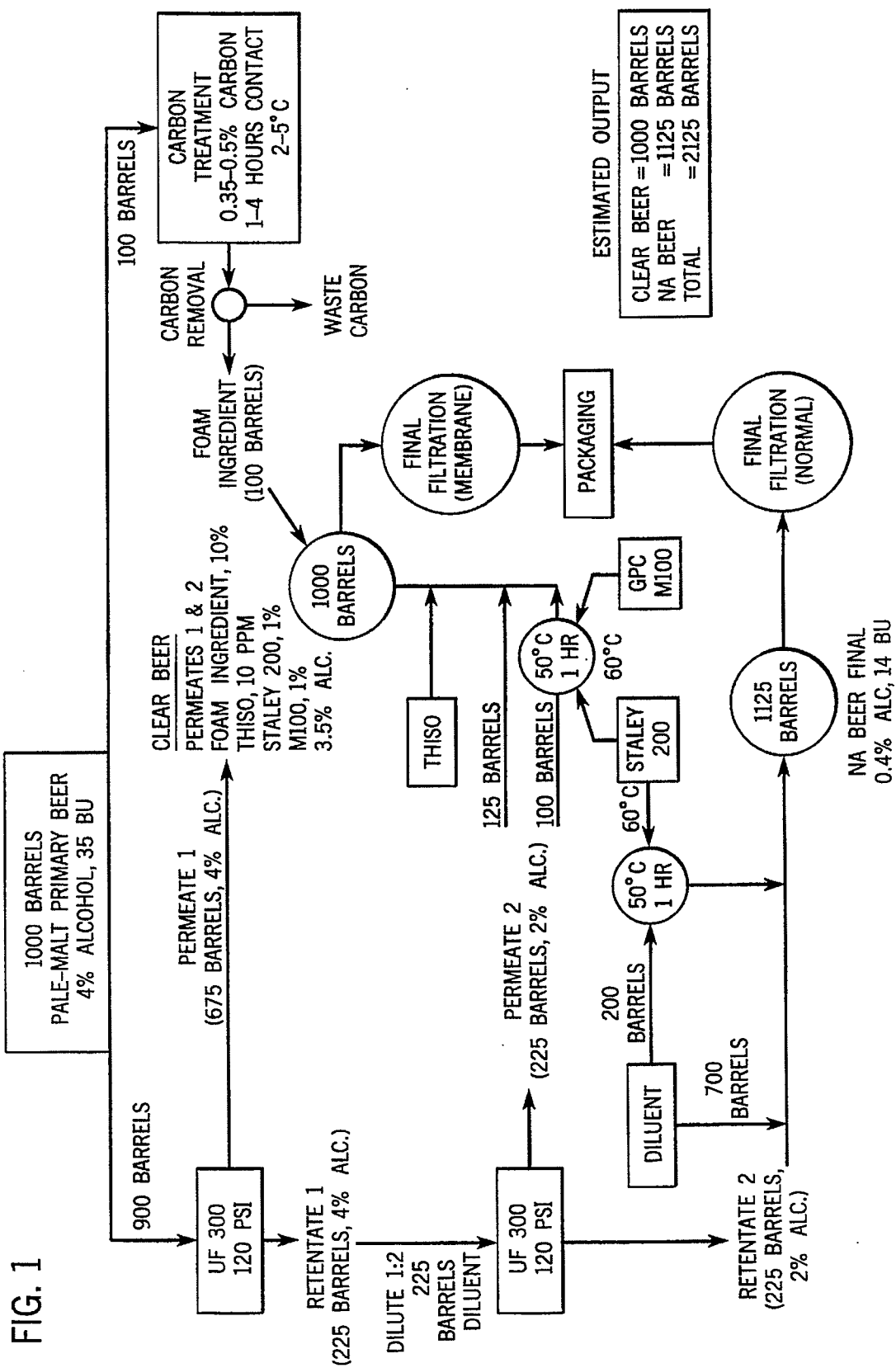
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[57] **ABSTRACT**

A method is disclosed of preparing a colorless, clear beer by a method including ultrafiltration and the addition of dextrans, bittering agents and a foam enhancer. Methods of preparing improved nonalcoholic malt beverages and making natural beer foaming components also are disclosed. Further methods are disclosed for making flavored malt beverages, including a stable citrus flavored malt beverage.

19 Claims, 1 Drawing Sheet





FLAVORED MALT BEVERAGES PREPARED BY USING ULTRAFILTRATION METHODS

The application is a continuation-in-part of application Ser. No. 08/029,740 filed Mar. 11, 1993 now U.S. Pat. No. 5,439,699.

FIELD OF THE INVENTION

The present invention generally relates to brewing. More particularly, it relates to flavored malt beverages and methods of preparing them.

BACKGROUND OF THE INVENTION

Conventional beers are usually straw-colored or darker colored liquids. Although colorless, clear, malt-based beverages have been made in the past by the brewing industry, those products contained tartaric acid and had other attributes which rendered them less than optimally suitable for use as a flavored malt beverage base.

The Goldstein, et al. U.S. Pat. No. 4,440,795 discloses a process for the production of a stable, malt beverage which comprises subjecting a beer to reverse osmosis using a membrane having a molecular weight cutoff (MWCO) of about 200 to obtain a permeate, which consists of water, alcohol, and organics having a molecular weight of less than about 200. The permeate obtained does not possess an acceptable beer flavor but it is useful as a base to which citrus flavoring can be added to obtain a flavored malt beverage. However, this malt base is too difficult to obtain due to extremely low permeation rates. The disclosure of the above patent, and of all other patents recited herein, are incorporated by reference as if fully set forth herein.

A second Goldstein, et al. U.S. Pat. No. 4,612,196 discloses a method of preparing a straw-colored beer of low alcoholic content using a reverse osmosis membrane wherein a retentate is used having a molecular weight cutoff (MWCO) of less than about 100 for organics. This permeate is also unacceptable as a beverage base due to the extremely slow permeation rate and flat flavor profile.

There is a continued interest in new and different alcohol based beverages. This has encouraged the research and development of flavored malt beverage products. For example, the production of flavored malt beverages and other malt beverage products is disclosed in U.S. Pat. Nos. 2,803,546; 3,332,779; 3,798,331; 3,908,021; 4,021,580; and 5,294,450.

U.S. Pat. Nos. 2,803,546; 3,332,779; and 4,021,580 disclose beverages which are made from bases which are not beers and, therefore, have unacceptable flavor profiles as flavored beverages. U.S. Pat. No. 3,798,331 produces a base which is not neutral enough to produce an acceptable flavored beverage. U.S. Pat. No. 3,908,021 discloses a base made from green malt which results in too much beer character for an acceptable flavor profile in flavored malt beverages. U.S. Pat. No. 5,294,450 discloses a flavored malt beverage having a flavor profile typical of tartaric acid (a lingering, dry, sour effect).

However, a need remains for flavored malt beverages which achieve high levels of consumer "overall liking" and "drinkability" while avoiding user sensations of fullness after consuming moderate amounts of the flavored beverage. In general, the consumer acceptability of flavored malt beverages is influenced by individual ingredients and the interaction between the ingredients. For example, the cre-

ation of a flavored malt beverage with desired taste characteristics depends on a number of ingredients and factors. These ingredients and factors include but are not limited to acids, flavoring agents, carbonation level, alcohol level, sugar level, the relative proportion of alcohol and sugar levels, and the raw materials which are used (malt and fermentable carbohydrates).

A need also exists for a stable citrus flavored malt beverage. Flavored malt beverages typically have a substantial amount of sulfur containing amino acids and other labile components which in the presence of citrus flavoring cause off aromas. These off aromas have been described by taste panels as resembling "rotten fruit" and "wet dog." The off aromas are generally more obvious when the flavored malt beverage has been stored at elevated temperatures.

SUMMARY OF THE PRESENT INVENTION

Another object of the invention is to disclose a method of making a flavored malt beverage wherein the ingredients cooperate to enhance drinkability and to minimize consumer sensations of fullness.

It is still further an object to disclose a method of making a "stable" citrus flavored malt beverage.

Another object of the invention is to disclose flavored malt beverages made by the above methods.

A still further object of the invention is providing flavored or unflavored malt beverages which can be used as mixers.

The method of the present invention for preparing a flavored malt beverage comprises removing at least a portion of the color from a base beer to form a reduced color malt base; and combining the reduced color malt base with at least one flavoring, a sweetening agent, malic acid, and carbon dioxide to thereby produce the flavored malt beverage, wherein the flavored malt beverage contains 2.5 to 2.8% v/v CO₂, 2.9 to 3.85% w/w alcohol, 12.5 to 22 calories/fluid oz., 0.05 to 0.5 g/100 ml malic acid, 5.4 to 11.6% w/w real extract, and less than 500 ppm or no tartaric acid. The removing step may be accomplished by subjecting the base beer to ultrafiltration at a pressure of 30 psi to 190 psi using a membrane having a nominal 300 weight cutoff range or by treatment of the base beer with carbon. The sweetening agent may be a carbohydrate derived from corn. The preferred flavorings are at least one of quinine, brandy, loganberry, lemon, apple, or tea flavors.

Another method of the present invention for preparing a citrus flavored malt beverage comprises removing at least a portion of the color from a base beer to form a reduced color malt base; and combining the reduced color malt base with International Flavors and Fragrances lemon flavoring formula no. 13580157, a sweetening agent, malic acid, and carbon dioxide to thereby produce the citrus flavored malt beverage having the essential absence of sulfide off-flavors if stored at least four months at 75° F., wherein the citrus flavored malt beverage contains 2.5 to 2.8% v/v CO₂, 3.45 to 3.85% w/w alcohol, 20 to 22 calories/fluid oz., 0.4 to 0.5 g/100 ml malic acid, 10 to 11.6% w/w real extract, and less than 500 ppm or no tartaric acid. The removing step can be accomplished by treating the base beer with carbon but a preferred method is by subjecting the base beer to ultrafiltration at a pressure of 30 psi to 190 psi using a membrane having a nominal 300 weight cutoff range. The sweetening agent may be any carbohydrate derivative.

In accordance with the foregoing methods, the resulting malt beverage product will comprise the indicated parameters and ingredients.

Another aspect of the invention provides a flavored malt beverage kit comprising a reduced color malt base in a first container, the reduced color malt base having been produced by removing at least a portion of the color from a base beer and a flavoring in a second container, whereby the flavored malt beverage is formed by mixing the reduced color malt base with the flavoring and wherein the flavored malt base has less than 500 ppm tartaric acid or no tartaric acid.

It will be apparent to those skilled in the art from the description which follows that the stated objects and other advantages can be achieved by practice of the present invention.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 depicts a flow chart of the present invention using as a basis 1000 barrels of feed beer.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG. 1, in the preferred method of the present invention both a clear beer and a nonalcoholic malt beverage (NA) are co-produced. By using the preferred method, for example, 1000 barrels of a feed beer (4% alcohol) can be converted into 2125 barrels of final product (1000 barrels of the clear beer and 1125 barrels of nonalcoholic beer).

For purposes of illustration, the preferred method is described starting with 1000 barrels feed beer (4% alcohol, 35 BU). 100 barrels of the feed beer are carbon treated and filtered to remove the carbon and obtain a filtrate for use as a natural beer foaming component. The remaining 900 barrels of the feed beer are concentrated 4 fold via ultrafiltration with the preferred membrane to obtain 675 barrels of a 1st permeate (4% alcohol) for preparing the colorless, water-white, clear beer and 225 barrels of a retentate (4% alcohol). In other words, the beer components retained by the ultrafiltration membrane have a 4-fold greater concentration in the retentate than they do in the feed beer by virtue of the respective volumes of feed beer to retentate (900 barrels:225 barrels or 4:1). The retentate is diluted to two times with diluent water, and the 450 barrels of diluted retentate is subjected to ultrafiltration using the same type of membrane. The 225 barrels of the 2nd permeate (2% alcohol) are used as described herein to make the clear beer and the 225 barrels of the retentate (2% alcohol) is used for preparing the NA beer.

To formulate the colorless, water-white, clear beer the following are blended:

- 675 barrels of permeate 1 (4% alcohol)
- 225 barrels of permeate 2 (2% alcohol)
- 100 barrels of the carbon treated feed beer (4% alcohol)
- 1% final concentration of intermediate dextrin (Staley 200)
- 1% final concentration of high dextrin (GPC M100)
- 10 ppm final concentration of the light stable hop extract, tetrahydroisohumulone (THISO)

One product obtained is 1000 barrels of a colorless, water-white, clear beer (3.5 w/w alcohol, 10 BU). To formulate the nonalcoholic (NA) malt beverage the following are blended:

- 225 barrels retentate (2% alcohol, 40 BU)
- 900 barrels diluent water
- 4% intermediate dextrin (Staley 200)

The second product obtained is 1125 barrels of a nonalcoholic (NA) beer (0.4% w/w alcohol; 14 BU).

The grand total of the colorless, water-white, clear beer and the nonalcoholic (NA) beer is 2125 barrels.

The feed beer may be a commercial beer or a specially brewed pale beer. Several different commercial beers have been used as the starting material. For example, an 80-100% pale malt beer having a color of about 4° to about 5° SRM may be used. However, a 100% pale malt beer having a color of about 4° to about 5° or less than 5° SRM is preferred.

The properties of the ultrafiltration membrane to be used in the process of the present invention are important. The membrane must permit ethanol to pass therethrough. If the membrane pore size is too large (e.g., MWCO 500), the permeate, which is used to make the clear beer will be too colored and not acceptable. Also, if the membrane is too tight, the permeation rate will be intolerably slow and important flavor components in the feed beer will be retained, resulting in an unpleasant, unbalanced, and unacceptable permeate. The permeation rate is a function of the characteristics of the starting beer and filter membrane. A membrane with a nominal 300 molecular weight cut-off range and with the same properties as the OSMONICS MX07 UF300 polyamide/polysulfone composite membrane is preferred.

It also has been found that the flavor of the permeate and the colorless, clear beer and the retentate and the resulting nonalcoholic malt beverage are influenced by the flavor of the feed beer. The greater the flavor of the feed beer, the more flavorful the permeate and retentate. For example, permeates made from highly hopped feed beers (e.g., 35 BU Cascade hops) have proportionately more hop flavor. Similarly, permeates with greater malt flavor are obtained when 100% malt was used in place of an adjunct such as syrups. The preferred feed beers are 100% pale malt brews which give water-white permeates. It is apparent that important beer flavor molecules permeate the membrane, and their concentration can be increased, decreased, and changed by changing the brewing ingredients and levels of ingredients and regime.

An excellent, natural beer foam for the colorless, water-white, clear beer can be made using natural beer foaming components made by a variety of processes, including cold contact of water with ground malt followed by carbon treatment to reduce color (5% use level), carbon treatment of the preferred ultrafiltration retentate (4% use level), carbon treatment of Brewer's yeast extract (2-10% use level), or carbon treatment of the feed beer (6-12% use level).

The natural beer foaming components made by the cold contact with malt process, while imparting excellent foam to the beer, requires special equipment and may impart a biscuit off-flavor to the final product, therefore it is less preferred. The natural beer foaming components made by carbon treating the retentate also produces excellent foam and adds desirable malty flavor, however the removal of carbon from the viscous retentate can be difficult and requires special equipment. The preparation of the Brewer's yeast extract requires special equipment. Therefore they are less preferred.

The preferred natural beer foaming components are made by the carbon treating of a portion of the feed beer and removing the carbon with filtration to obtain a product which when added to the permeate at 6-12% w/w imparts excellent foam and a malty flavor. Furthermore, removal of the carbon from the feed beer can be accomplished using filtration employed in normal brewery operations or any one of a variety of filtration devices and is a relatively easy task.

The carbon for use in the method of making the natural beer foaming components of the present invention is pref-

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erably a food grade activated carbon. An acceptable carbon is DARCO KBB made by American Norit Company, Inc., 1050 Crown Pointe Parkway, Suite 1500, Atlanta, Ga. 30338. The quantity to be used is preferably about 0.25 to about 1.0% by weight or about 0.67 lbs. to about 2.68 lbs. per barrel of feed beer which is calculated as follows: 0.25% is 2.5 g/L \times 3.785 L/gallon \times 31.5 gallons/barrel \times 0.0022 lb/g= 0.672 lbs/barrel. The carbon is kept in the feed beer for a period long enough to absorb color bodies and to reduce the color to the desired level (e.g. at least about 2 minutes). The carbon is then removed using any one of a variety of filtration devices, such as a Millipore membrane filter (38 L scale), which is available from the Millipore Filter Corporation of Bedford, Mass.

The use of diatomaceous earth (DE) as a filter aid is to be avoided because it tends to remove proteins beneficial to foam formation. Similar foam losses resulted when cellulosic pads containing DE were used. It also has been found in making the clear beer, that the use of diatomaceous earth (DE) as a filter aid in the removal of carbon or as a final polishing filter prior to packaging results in a dramatic reduction in foam, presumably due to protein removal. Therefore, it is not recommended.

Although a cellulose filter aid is preferred at plant scale to remove carbon, the Millipore type membrane filters (38 L scale) are preferred at lab scale because they can be used both to remove the carbon from the foaming component and as a final filter for the beer without having any effect on foam amount and quality.

We also have discovered that a more desirable beer-like body and dryness can be produced in either the clear beer or a nonalcoholic malt beverage by increasing the concentration of dextrins. A combination of intermediate dextrins (e.g. Staley 200 or 225) to provide body and high molecular weight dextrins (e.g. GPC's M100 Maltrin) to provide body and dryness are used to make the preferred colorless, clear beer at levels of about 1% by weight each. The preferred dextrins content for the nonalcoholic malt beverage is obtained by adding about 1-5% by weight of the intermediate dextrins (Staley 200 or 225).

The bitterness of the colorless, water-white, clear beer and the nonalcoholic beer can be important. During the ultrafiltration step of the preferred method of the present invention using highly hopped feed beers (20-45 BU), a 30-50% loss of bittering units (BUs) occurs, resulting in a less bitter retentate than expected. Levels of BUs in the permeate are typically below the level of meaningful detection (<2 BU). Carbon treatment of the feed beer also removes BUs to a point below detection resulting in a light stable fraction.

In making the clear beer a hopping material is added to obtain the desired BU level prior to the final filtration. The preferred hopping material is tetrahydroisohumulone (THISO) disclosed in U.S. Pat. No. 4,644,084. When it is used as the source of bittering, the light stability of the colorless, clear beer is not an issue.

A variety of nonalcoholic (NA) beers can be made using the retentate from the ultrafiltration of the preferred method. The retentate which would normally be a waste stream produces nonalcoholic malt beverage which are beer-like with little or no wortiness.

In the preferred method of improving the body and dryness of a nonalcoholic malt beverage the dextrose and intermediate dextrin contents are increased. The result is an NA beer which has the desired sweetness, body and dryness and which is balanced without any excess bitterness. One method of accomplishing this is to use glucoamylase (GA) at about the same level (e.g. 882 units GA/liter; 1 unit is 1

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micromole of dextrose liberated per minute at pH 4.3 using a 10 DE starch) that the GA is used in making a light beer, followed by a residence time of about 4-8 days depending on the degree of attenuation desired (4 days, 0.5% dextrose; 8 days, 1% dextrose), and followed by flash pasteurization. The resulting nonalcoholic malt beverage has a rich, creamy, well balanced character. Most preferably, glucoamylase is added directly to the diluted retentate.

A second method of improving the body and dryness of a nonalcoholic beer is to increase the dextrose and intermediate dextrin content of the nonalcoholic malt beverage by simply adding low and intermediate sized dextrins to add body, sweetness, and balance. It has been found that the addition of 1-5% intermediate dextrins (Staley 200 or 225) results in a full bodied, nicely balanced nonalcoholic malt beverage. The increase in dextrose and intermediate dextrin content by either the use of GA or the addition of intermediate dextrins provides a method for making a wide range of nonalcoholic malt beverages of improved properties.

The practice of the invention is further illustrated by the examples.

EXAMPLE 1

Preparation of Feed Beer

A wort (12.5° Plato) was prepared from the following ingredients:

Pale Malt, lbs.	21,100
Foundation Water, bbl.	180
Sponge Water, bbl.	94
Chase Water, bbl.	2
CaSO ₄ lbs.	30
CaCl ₂ , lbs.	26

The ingredients were mashed at 115° F. for 20 minutes, the temperature raised to 156° F. and held for 30 minutes and raised to 170° F. and held for 5 minutes. The mixture was transferred to a lauter tun and boiled for 60 minutes. It was kettle hopped with 100% Cascade hops (125 lbs.) to 33.5 BU. It was aerated and pitched at about 10 million cells/cc, of *Saccharomyces uvarum* and fermented at a constant 60° F. (15.5° C.). The yeast concentration reached a maximum of 7.35 grams/liter (dry weight basis). About 190 hours were required to complete the fermentation. The feed beer obtained had a conventional lager beer taste with the exception that it had more hop flavor and aroma and bitterness than many typical lager beers. The finished feed beer contained about 3.65% w/w alcohol (4.67% by volume); had a BU level of 33.5, was pale straw-colored (4.5° SRM) and had a specific gravity of 1.0102.

EXAMPLE 2

Ultrafiltration of Feed Beer

The feed beer of Example 1 is concentrated by ultrafiltration using an OSMONICS MX07 UF300 membrane at 120 psi. When only a colorless, water-white, clear beer is desired, the beer can be concentrated up to 10 fold with the resulting permeate being the base. When an NA malt beverage is being co-produced, only a 4 fold concentration is preferred so as not to deplete the retentate of important beer flavor compounds. In other words, the beer components retained by the ultrafiltration membrane have a 10 fold or a 4 fold greater concentration in the retentate than they do in the feed beer by virtue of the respective volumes of feed beer

to retentate (10:1 or 4:1, respectively). The retentate can be diluted with diluent water in equal parts to the retentate (1:1), subjected to a second ultrafiltration and the second permeate added back to the clear beer. As a result no alcohol is lost to waste.

EXAMPLE 3

Preparation of Colorless, Clear Beer

To a permeate obtained by the ultrafiltration process of Example 2 there is added 1% by weight of intermediate dextrins and 1% by weight of high dextrins. At plant scale, the syrups can be mixed by adding them slowly to the front end of a circulation pump in a typical circulation loop. At laboratory or pilot scale to facilitate the mixing of the intermediate and high dextrins (Staley 200 and M100 Maltrin) with the permeate, a mixture is prepared (10% Staley 200 and 10% GPC's M100) in a portion of the permeate, and dissolved by heating to 120° F. for 30–60 minutes to form a concentrate. This concentrate is then added to the permeate to a final formulation concentration of 1% Staley 200 and 1% GPC M100. The natural beer foaming component prepared by carbon treatment of the feed beer (as described in Example 5) is added at 10% to impart foam. The formulation is completed by adding the hopping material tetrahydroisohumulone (THISO) to a final concentration of 10 ppm. The colorless, water-white, clear beer is then final filtered prior to packaging using a 0.45 micrometer membrane filter.

A typical clear beer obtained by the preferred method of the invention has the following composition:

Alcohol, % w/w	3.65
Alcohol, % v/v	4.56
Real Extract, % w/w	2.25
Extract/Alcohol	0.63
Orig Gravity, Calc.	9.26
App Extract, % w/w	0.61
Specific Gravity	1.00236
Calories/12 oz	120
pH	4.7
Color, SRM	0.2
BU	8.2
Initial Clarity	40

EXAMPLE 4

Nonalcoholic Malt Beverage Retentate

A 20–40% solution of intermediate dextrins (Staley 200) is made up in diluent water and dissolved by heating at 120° C. for 30–60 minutes, and then added to the diafiltered retentate (2% alcohol) from Example 2 to a final product concentration of 4%. The retentate is further diluted to 0.4% w/w alcohol, and the product is final filtered and packaged as for a regular nonalcoholic malt beverage.

EXAMPLE 5

Preparation of Natural Beer Foaming Component

A portion of the feed beer of Example 1 is treated with 0.25–1.0% Darco KB-B carbon (pre-slurried with 60° C. water) at –1°–5° C. for a minimum contact time of 2 minutes (up to a 12 hour contact time has been found to be acceptable). The carbon is then removed by filtration for example using a 0.45 micrometer (0.8 um, carbon fines bleed through) membrane filter (Millipore type HA nitrocellulose). (With this filter, 100 barrels of 0.35%–0.5% carbon treated

primary beer can be filtered in 8 hours using 375 square feet of membrane.) The decolorized natural beer foaming component (color less than 1.0° SRM) is held until required.

EXAMPLE 6

Preparation of Natural Beer Foaming Component From Malt

Conventional brewer's malt is ground and mixed with 1 to 5 parts water to 1 part malt at 1° to 15° C. The resulting mash is strained and centrifuged with the sediment being discarded. A clear supernatant is diafiltered four times using an OSMONICS UF 3000 membrane to remove unwanted color and flavor. The permeates are discarded. The retentate is concentrated, pasteurized for 15 minutes at 65° C. and centrifuged to obtain a clear supernatant fluid which can be used as a natural beer foaming component. The supernatant fluid can be further treated with carbon to improve its foaming properties.

EXAMPLE 7

Preparation of Natural Beer Foaming Component From Retentate

To a retentate obtained from the ultrafiltration process of Example 2 there is added 0.5 to 2% Darco KB-B carbon (pre-slurried with 60° C. water) at –1° to 85° C. for a minimum contact time of 2 minutes up to 1 hour. The carbon is removed in the same manner as set forth in Example 5 to result in a similar decolorized natural beer foaming component which is held until required.

EXAMPLE 8

Preparation of Natural Beer Foaming Component From Brewer's Yeast

To a permeate obtained from the ultrafiltration process of Example 2 there is added a carbon treated Brewer's yeast extract. The Brewer's yeast is disrupted by any one of a variety of methods, for example, shaking with glass beads or disruption using a Gallun homogenizer. The extract is clarified by centrifugation and the supernatant is treated with Darco KB-B carbon in the same amount and manner as set forth in Example 7 and the carbon removed from the Brewer's yeast extract in the manner set forth in Example 5 to result in the natural beer foaming component.

Preparation of Flavored Malt Beverages
The flavored malt beverages of the present invention are produced by first making a base beer using a normal high gravity brewing, fermenting, and aging process. The mashing conditions are typically 20 minutes at 122° F., then 15 minutes at 145° F., then 15 minutes at 160° F., then 5 minutes at 170° F. The kettle boil is typically 60–90 minutes at the end of kettle fill. The wort is 14° to 15° Plato and is pitched with 25×10^6 cells of *Saccharomyces uvarum* with a temperature ramp from 54° F. to 60° F. Fermentation is conducted for 4 to 5 days. Glucoamylase is added to the fermentation kettle at 1323 units/liter. The base beer recovered from the fermenter is then treated for at least partial color removal.

Typically, a 21:79 by wt. malt/dextrose ratio is used to produce the base beer. However, a higher proportion of malt may be used, limited only by residual beer character in the reduced color malt base (formed after carbon treatment or ultrafiltration of the base beer) interfering with the desired

flavor profile of the final product. For example, a 56:44 by wt. malt/dextrose ratio has resulted in a flavored malt beverage having an acceptable flavor profile. One should understand that little or no beer components remain in the reduced color malt base (compared to the clear beer permeate, supra) after carbon treatment or ultrafiltration because less malt and hops are used in the brewing process of the base beer (compare with clear beer feed beer of Example 1).

The process of making the flavored malt beverages of the present invention includes adding an enzyme capable of converting non-fermentable carbohydrates to fermentable carbohydrates. The preferred enzyme is glucoamylase.

By removing at least a portion of the color from the base beer we mean removing a sufficient amount of the malt/hop flavor so as to not interfere with the flavor profile of the final flavored malt beverage. The color removal may be by any number of methods including exchange resins or cyclodextrins. However, carbon filtration and ultrafiltration are preferred.

Using carbon filtration, the preferred dosage of carbon is 0.1 to 1.0% w/w. The preferred type of carbon is Darco KB-B. The optimal amount of carbon depends on the color and alcohol content of the base beer. The carbon is removed by filtration using any one of several types of filters discussed, supra. Using ultrafiltration, the preferred membrane is one having the same properties as the OSMONICS MX07 300 UF polyamide/polysulfone composite membrane. The base beer is ultrafiltered at 40° F. to 50° F. at 120 psi and concentrated 10 to 12 fold.

The flavored malt beverages of the present invention minimize consumer sensations of fullness, i.e. they are drinkable and refreshing. One method of measuring these desired characteristics uses a taste panel to produce a Hedonic score. By Hedonic score we mean the consumer's overall liking based on all attributes taken together. A given Hedonic score is based on a taste panelist's personal frame of reference. A preferred Hedonic score is above 4.5. A more preferred Hedonic score is above 5.5. A most preferred Hedonic score is above 6.5. For a discussion of Hedonic scoring, see E. Larmond, *Methods for Sensory Evaluations of Food*, (1980).

A stable citrus flavored malt beverage, and method of making it, preferably uses International Flavors & Fragrances (IFF) Lemon flavoring formula #13580157. By stable, we mean the essential absence of sulfide off-flavors (described by sensory panelists as "wet dog" and "rotten fruit") if stored at least 4 months at 75° F. For example, storage at 140° C. for 3 days can be used to approximate 8 to 12 months at room temperature (75° F.). Preferably, the citrus flavored malt beverage is stable for at least 6 months at room temperature.

EXAMPLE 9

Definitions

By flavorings, we mean any fruit, quinine, tea, coffee, guarana nut, chocolate, licorice, fruit juice, anise, root beer, cola, rum/coke, gin/tonic, margarita, whiskey sour, pina colada, Long Island iced tea flavors. Preferred flavorings are quinine, brandy, loganberry, tea, apple, and lemon. By quinine, we mean the alkaloid extracted from cinchona bark and all of its chemical derivatives. However, quinine hydrochloride and quinine sulfate are preferred.

Malic acid is most preferred but other food grade acids (such as succinic, citric, phosphoric) may give acceptable flavor profiles. Less than 500 ppm tartaric acid, and preferably no tartaric acid, is desired as an additive in the present

invention because it gives a lingering dry/sour taste to the flavored malt beverage. Malic acid is most preferred because it gives a smooth, round feel to the flavored malt beverage.

Other preferred stable citrus flavorings suitable for the present invention include IFF lime flavor no. 73566800 and IFF citrus/gin flavor no. 19-WS-0431. Another preferred stable citrus flavoring suitable for the present invention is Bothwicks flavor no. B-28894.

Generally speaking, any flavoring can be used in the present invention if it is organoleptically compatible with the reduced color malt base of the present invention.

The flavored malt beverages of the present invention meet the BATF requirements that the base beer be formulated such that the dry weight of the malt constitutes at least 25% by weight of the total dry weight of all ingredients which contribute fermentable extract to the base beer and that at least 7.5 lbs. of dry hops are added to each 100 barrels of base beer (1 lb. hop extract equals 1.8 lbs. dry hops).

The malt base of the present invention can be used as a mixer for all manner of liquors like fruit flavored liquors, whiskey, gin, tequila, rum, and fruit juices due to its body, sweetness, alcohol level, acidity, and neutral flavor profile.

By real extract, we mean the difference in the weight of an evaporated sample and that of the ash from combusting the evaporated sample. It measures solids which are metabolized by mammals (carbohydrates, proteins, etc.).

By % CO₂ v/v, we mean the difference in liquid sample volume after the CO₂ is precipitated out as a carbonate.

Method of Manufacture

A base beer is produced using normal high gravity brewing, fermenting and aging processes. At least partial color is removed from the base beer by carbon filtration to make the reduced color malt base, followed by adjunct and flavor addition and normal finishing.

Approximate alcohol content of the neutral malt base is 6.0 to 7.5% by weight and of the finished flavored product is 3.0 to 3.5% by weight.

Process Water

Water treated to brewing standards.

Mash Mixer

Process water

Mineral Salts to Brewing Standards (Example 1, supra.).

Barley malt (see Note 1). 7440 pounds per 800 barrel brew at 14.3° Plato. The base product is formulated such that the dry weight of the malt constitutes at least 25% by weight of the total dry weight of all ingredients which contribute fermentable extract to the base product.

Kettle

Process Water

Dextrose (see Note 2). 36,630 pounds per 800 barrel brew at 14.3° Plato.

Yeast (see Note 3). Added at 40 pounds per 800 barrel brew.

Wort Cooling and Transfer

Process Water

Air

Yeast—25×10⁶ cells/ml *Saccharomyces uvarum*

Fermenter

Process Water

Carbon Dioxide

Glucoamylase (see Note 4). Added at 12 to 16 liters per 800 barrel brew.

Transfer to Aging

Process Water

Carbon Dioxide

Diatomaceous Earth and Cellulose Filter Aids

Modified Hop Extract (see Note 5). Added at 4.7 pounds per 100 barrels of neutral malt base (equivalent to 8.5 pounds of dry hops).

Aging

Carbon Dioxide

Carbon Filtration

Carbon

Diatomaceous Earth and Cellulose Filter Aids

Transfer to Package Release

Diluent (see Note 6)

Carbon Dioxide for a final 2.5 to 2.8% v/v

Malic Acid (see Note 7), as manufactured by Haarman & Reimer Corp. and supplied by Van Waters and Rogers, is added to the finished product to enhance flavor, at the rate of 0.2 to 0.4 g/100 ml.

Liquid Corn Adjunct (see Note 8), as supplied by A. E. Staley Manufacturing, is added to the finished product to impart body and sweetness, at 40 to 80 grams per liter.

The following flavors may be added alone or in combination to the neutral malt base:

Quinine Hydrochloride, CAS No: [130-89-2] (see Note 9), as manufactured by DSM Andeno and supplied by R. W. Greef & Co., Inc. is added to the finished product to impart bitterness at the rate of 6 to 25 ppm; and/or,

Natural Flavor Taste of Brandy, Flavor #DY-08505 (see Note 10), as manufactured and supplied by Quest International, Owings Mills, Md., is added to the finished product at 0.02 to 0.06 g/100 ml; and/or,

Loganberry Flavor WONF, Flavor #DY-08404 (see Note 11), as manufactured and supplied by Quest International, Owings Mills, Md., is added to the finished product at 0.04 to 0.12 g/100 ml.

Notes:

1. Barley malt as received from suppliers contains 5 to 25 ppm of SO₂ (sulfur dioxide). This residue results from the use of sulfur in the malting process. Dilution, plus the kettle boil, reduces the SO₂ to a level less than 1 ppm, if not entirely. Laboratory tests accurate to 0.5 ppm substantiate the elimination of the SO₂.

2. Dextrose, as received from suppliers, contains no additives or preservatives. Liquid corn adjunct contains only residual corn material and water. It contains less than 3 ppm SO₂ as received.

3. Yeastex, a yeast nutrient, is assimilated by the yeast during the fermentation process.

4. Glucoamylase is an enzyme derived from *Aspergillus niger*, a filamentous fungus. It is used to effect a more complete conversion of carbohydrates to fermentable sugars. This, in turn, permits a more complete conversion of sugars to alcohol and CO₂. After fermentation, the beer is processed through a heat exchanger. The heat process destroys enzymatic activity. The enzyme preparation contains no additives or preservatives.

5. Modified hop extract is derived from CO₂ hop extract, as defined in the Code of Federal Regulations, Title 21, Section 172.560, paragraph b(1).

6. Diluent is carbonated process water treated to brewing standards.

7. Malic Acid is a flavor enhancer used for tartness and flavor enhancement.

8. Liquid Corn Adjunct, as received from suppliers, contains no additives or preservatives. Liquid corn adjunct contains only residual corn material and water. It contains less than 3 ppm SO₂ as received.

9. Quinine hydrochloride is, as received, a fine white odorless powder used to impart bitterness.

10. Brandy flavor is a liquid material with the characteristic odor and flavor of brandy.

11. Loganberry flavor is a liquid material with the characteristic odor and flavor of loganberry.

EXAMPLE 10

A. Reduced Color Malt Base

Bill of materials for a 440 barrel brew at 14.30° Plato

O.G. are:

4,300 pounds malted barley

20,145 pounds liquid dextrose

22 pounds yeastex

10.6 pounds modified hop extract (equivalent to 49.6 pounds dry hops)

7.9 liters Glucoamylase

Method of Manufacture

A base beer is produced using normal high gravity brewing, fermenting and aging processes. At least a portion of the color is removed from the base beer by ultrafiltration at a pressure of about 30 psi to about 190 psi using a nominal 300 molecular weight cutoff range to obtain a neutral malt base as a permeate. Approximate alcohol content of the neutral malt base is 6.0 to 7.5% by weight. Original Gravity of 14.15° to 14.45° Plato (high gravity brewing)

B. Tea Flavored Product

Finished product

1.000 barrel neutral malt base product

0.935 barrel water

6.700 pounds high fructose corn syrup (77%), A. E. Staley

0.522 pounds natural tea essence, Borthwicks #B-28575

0.392 pounds tea leaves, Southern Tea

0.365 pounds malic acid, Ashland Chemicals (0.14 g/100 ml)

0.076 pounds caramel color, D. D. Williamson

0.015 pounds red fruit extract, Quest International

Approximate alcohol content—3.6 to 3.8% by weight

Calculated Original Gravity—7.35° to 7.93° Plato

C. Stable Lemonade Flavored Product

Finished product

1.000 barrel neutral malt base product

0.935 barrel water

27.85 pounds high fructose corn syrup, (77%), A. E. Staley

1.169 pounds malic acid, Ashland Chemicals (0.45 g/100 ml)

0.522 pounds natural lemon flavor, International Flavors & Fragrances (IFF) #13580157, Union Beach, N.J.

0.444 pounds cloudifier, IFF #73589352

0.047 grams FDC yellow #6 color, Warner Jenkinson

0.012 grams FDC blue #1 color, Warner Jenkinson

0.058 grams FDC red #40 color, Warner Jenkinson

Approximate alcohol content—3.6 to 3.8% by weight

Calculated Original Gravity—7.35° to 7.93° Plato

D. Cider/Apple Flavored Product

Finished product

1.000 barrel neutral malt base product

0.935 barrel water

11.22 pounds high fructose corn syrup (77%), A. E. Staley

8.090 pounds apple cider concentrate (70 brix), Tree Top

0.287 pounds malic acid, Ashland Chemicals (0.13 g/100 ml)

0.261 pounds natural apple cider flavor, IFF

0.074 pounds caramel color, D. D. Williamson

EXAMPLE 11

Beer tails may be used to blend with flavored syrups through a drink dispenser by a mixologist. The preferred

beer tails are produced in the high gravity brewing of Examples 9 and 10, except that the alcohol by wt. may be from 6 to 10%. The base beer is preferably ultrafiltered. Beer tails are preferably shipped to the point of sale in barrels. The beer tails can then be dispensed in an automatic metering device along with flavored syrups to make, for example, gin/tonic, rum/coke, Tom Collins, Margarita flavored malt beverages. Beer tails may also be packaged in typical single use containers (e.g., bottles, cans) to be mixed with a container of flavoring attached to the single use container.

It will be readily apparent to those skilled in the art that a number of modifications and changes may be made without departing from the spirit and scope of the present invention. Therefore, it is intended that the invention only be limited by the claims.

We claim:

1. A method of preparing a flavored malt beverage, comprising:

subjecting a base beer to ultrafiltration to obtain a reduced color malt base as a permeate; and

combining the reduced color malt base with at least one flavoring, a sweetening agent, malic acid, and carbon dioxide, wherein the flavored malt beverage contains 2.5 to 2.8% v/v CO₂, 2.9 to 3.5% w/w alcohol, 12.5 to 13.5 calories/fluid oz., 0.2 to 0.4 g/100 ml malic acid, 5.4 to 5.8% w/w real extract, and no tartaric acid.

2. The method of claim 1, wherein the flavoring is quinine.

3. The method of claim 1, wherein the flavoring is a mixture of brandy flavor and loganberry flavor.

4. A method of preparing a flavored malt beverage, comprising:

subjecting a base beer to ultrafiltration to obtain a reduced color malt base as a permeate; and

combining the reduced color malt base with at least one flavoring, a sweetening agent, malic acid, and carbon dioxide, wherein the flavored malt beverage contains 2.5 to 2.8% v/v CO₂, 3.45 to 3.85% w/w alcohol, 15 to 22 calories/fluid oz., 0.05 to 0.5 g/100 ml malic acid, 6.0 to 11.6% w/w real extract, and no tartaric acid.

5. The method of claim 4, wherein the flavoring is tea flavoring.

6. The method of claim 4, wherein the flavoring is apple flavor.

7. The method of claim 4, wherein the flavored malt beverage contains lemon flavoring, 20–22 calories/fluid oz., 0.4 to 0.5 g/100 ml malic acid, and 10 to 11.6% w/w real extract.

8. The method of claim 7, wherein the flavored malt beverage has the essential absence of sulfide off-flavors if stored at least four months at 75° F.

9. The flavored malt beverage produced by the method of claim 1, wherein the malic acid and the absence of tartaric acid cooperate to minimize sensations of lingering dryness and sourness experienced by consumers of the flavored malt beverage, and to enhance sensations of a smooth and round mouthfeel experienced by said consumers.

10. The flavored malt beverage produced by the method of claim 4, wherein the malic acid and the absence of tartaric acid cooperate to minimize sensations of lingering dryness and sourness experienced by consumers of the flavored malt

beverage, and to enhance sensations of a smooth and round mouthfeel experienced by said consumers.

11. The flavored malt beverage produced by the method of claim 8, wherein the malic acid and the absence of tartaric acid cooperate to minimize sensations of lingering dryness and sourness experienced by consumers of the flavored malt beverage, and to enhance sensations of a smooth and round mouthfeel experienced by said consumers.

12. A flavored malt beverage product, consisting essentially of:

a reduced color malt base produced by ultrafiltering at least a portion of the color from a base beer;

at least one flavoring;

a sweetening agent;

2.5 to 2.8% v/v CO₂;

2.9 to 3.3% w/w alcohol;

12.5 to 13.5 calories/fluid oz.;

0.2 to 0.4 g/100 ml malic acid;

5.4 to 5.8% w/w real extract; and

no tartaric acid;

wherein the malic acid and the absence of tartaric acid cooperate to minimize sensations of lingering dryness and sourness experienced by consumers of the flavored malt beverage, and to enhance sensations of a smooth and round mouthfeel experienced by said consumers.

13. The flavored malt beverage of claim 12, wherein the flavoring is quinine.

14. The flavored malt beverage of claim 12, wherein the flavoring is a mixture of brandy flavor and loganberry flavor.

15. A flavored malt beverage product, consisting essentially of:

a reduced color malt base produced by ultrafiltering at least a portion of the color from a base beer;

at least one flavoring;

a sweetening agent;

2.5 to 2.8% v/v CO₂;

3.45 to 3.85% w/w alcohol;

15 to 22 calories/fluid oz.;

0.05 to 0.5 g/100 ml malic acid;

6.0 to 11.6% w/w real extract; and

no tartaric acid;

wherein the malic acid and the absence of tartaric acid cooperate to minimize sensations of lingering dryness and sourness experienced by consumers of the flavored malt beverage, and to enhance sensations of a smooth and round mouthfeel experienced by said consumers.

16. The flavored malt beverage product of claim 15, wherein the flavoring is tea flavoring.

17. The flavored malt beverage product of claim 15, wherein the flavoring is apple flavor.

18. The flavored malt beverage product of claim 15, wherein the beverage contains lemon flavoring, 20–22 calories/fluid oz., 0.4 to 0.5 g/100 ml malic acid, and 10 to 11.6% w/w real extract.

19. The flavored malt beverage product of claim 18, wherein the beverage has the essential absence of sulfide off-flavors if stored at least four months at 75° F.